

## Riverbed and VMware

### Riverbed and VMware VI3 Deliver Low Cost, High Performance Disaster Recovery

With the increased reliance on information technology, the success of an organization is dependent on the high availability of its IT infrastructure, data, and applications. Today, data is the lifeline for organizations, and any unplanned downtime affects the company's bottom line. Because of this, disaster recovery (DR) and business continuity are no longer an option, they are a requirement. By combining Riverbed's award-winning WAN optimization solutions with VMware's virtualization products, enterprises can implement a high performance DR solution that will result in improved uptime of data while simultaneously reducing bandwidth costs.

### Virtual Datacenters, Disaster Recovery and Business Continuity with VMware and Riverbed

VMware VI3 makes it possible to implement disaster recovery plans at a significantly lower cost. Traditional disaster recovery plans require that recovery target hardware must exactly duplicate production hardware, effectively doubling hardware requirements for protected applications. In contrast, VMware virtual machines are hardware-independent so any physical server can serve as a recovery target for any virtual machine. Organizations

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*"Without the combination of VMware and Riverbed's Steelhead WAN Optimization appliances we could never have achieved consolidation. With the joint solution, we have been able to eliminate 66% of our servers and accelerate our VMware disaster recovery traffic increasing our WAN capacity on an average by 2.5x. To make it even better, we still get the daily benefits of improved WAN performance at our branch offices for our attorney's and other professionals."*

— Mandi Turner Director of Information Technology,  
Greenebaum, Doll & McDonald

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can significantly reduce the cost of hardware for disaster recovery by repurposing underutilized existing servers for recovery targets and disaster recovery testing.

VMware VI3 also simplifies and accelerates recovery, helping IT organizations meet their recovery time objectives (RTO) targets. Complex multi-step procedures using specialized software for bare-metal recovery and operating system recovery can be simplified to single-step file recovery because virtual machines are completely encapsulated in a small number of files and can be restored to any hardware. This encapsulation property also makes it possible to use third-party replication accelerated by Riverbed's Steelhead appliances to replicate entire virtual machines to a recovery site, significantly reducing recovery time.

A Joint Solution by Riverbed and



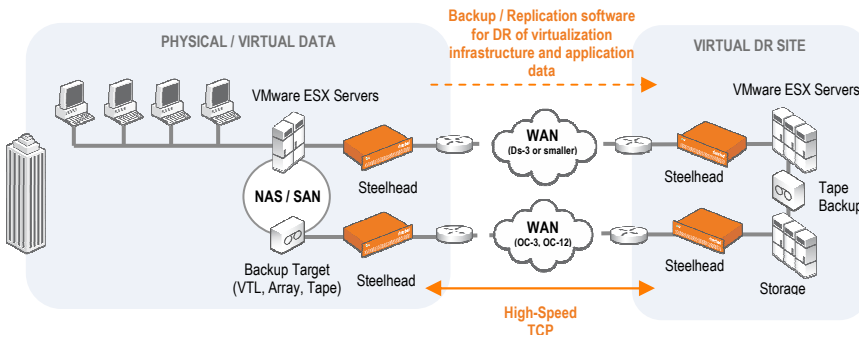
#### BENEFITS

Organizations of all sizes look to VMware and Riverbed to accelerate and simplify disaster recovery in the following ways:

- Implement a low-cost, high-performance Disaster Recovery solution
- Improve RPO (Recovery Point Objectives) and RTO (Recovery Time Objectives) to maximize application availability
- Perform backups/disaster recovery across the WAN faster with no bandwidth upgrades
- Centralize backup infrastructure.
- Spend less on a secondary DR site with no sacrifice of data protection

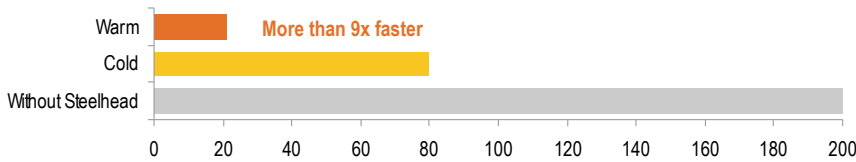


Riverbed's Steelhead appliances minimize WAN costs and dramatically accelerate the complete disaster recovery process. Riverbed will accelerate the disaster recovery process irrespective of where the data resides or what application is used. The data could be resident inside a virtual machine or the VMware image files sitting on an external storage device. The Riverbed Optimization System (RiOS) simultaneously addresses bandwidth constraints by using fine grain data reduction as well as compression to perform Data Streamlining, typically reducing bandwidth utilization by 60 to 99%. Transport Streamlining and Application Streamlining can minimize protocol chattiness, eliminating 65 to 98% of packet round trips across the WAN. Riverbed's ability to find data commonality across multiple VMware images and application data results in dramatically accelerated replication jobs and low bandwidth consumption resulting in great RPO.

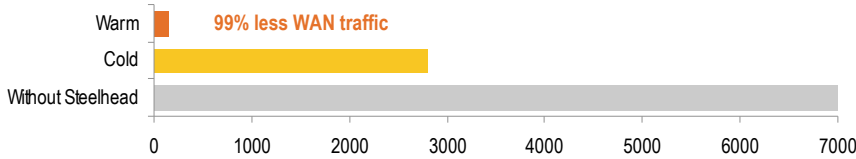


Replication of virtual images for disaster recovery accelerated by Steelhead appliances.

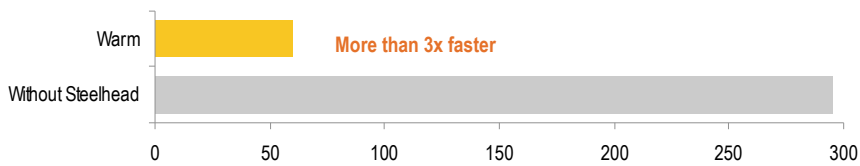
**Time Improvement for Replicating a P2V image of size ~7GB belonging to a Windows 2003 Server + SP1 creating using VMware Converter – Time to Complete (in seconds)**



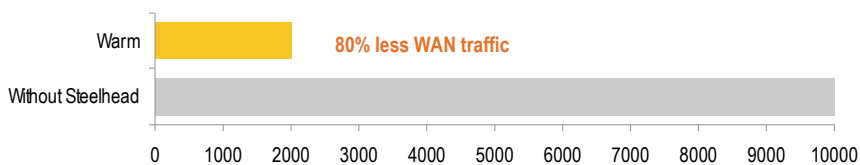
**Bandwidth Reduction for Replicating a P2V image of size ~7GB belonging to a Windows 2003 Server + SP1 creating using VMware Converter (in megabytes)**



### Time Improvement for Replicating a second p2v image of size ~10GB belonging to Windows2003 +SP1 + Exchange – Time to Complete (in seconds)



### Bandwidth Reduction for Replicating a second p2v image of size ~10GB belonging to Windows2003 +SP1 + Exchange (in megabytes)



### About VMware

VMware is the world's leading provider of virtualization solutions for x86-based servers and desktops. Through a pioneering approach to virtualization, VMware technology works to separate the software from the underlying hardware. This allows a single computer to run multiple operating systems and applications, delivering significant improvements in efficiency, availability, flexibility and manageability. Founded in 1998, VMware is headquartered in Palo Alto, California, with offices around the world. VMware's customer base consists of more than 20,000 organizations of all sizes, including 100% of Fortune 100 companies.

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## 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](http://www.riverbed.com)



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