

# Accelerate Data Center Replication with Riverbed and NetApp

## Data Replication Challenges over the WAN

With data growing at unprecedented rates, IT organizations are facing a new set of challenges related to managing and protecting an enterprise's most critical assets, without increasing IT costs.

WAN-based data replication is an important approach to data protection that can help curb the rising costs of IT, while simultaneously increasing the levels of data protection and security. Characteristics common to a WAN, for example, high latency, limited bandwidth, congestion, and low link quality, can make data replication processes be slow and unpredictable or even fail entirely. Riverbed Steelhead WAN optimization solutions overcome the negative effects of these impairments, delivering LAN-like performance for NetApp® SnapMirror® technology and all other business applications traversing the WAN.

## NetApp SnapMirror

NetApp SnapMirror has been used by thousands of customers worldwide to protect and accelerate their business by replicating their critical data across global networks at high speeds. Efficient SnapMirror thin replication is used primarily for disaster recovery, providing the ability to quickly recover from adverse natural or human-made events. As economic pressures increase, IT organizations are becoming more

creative with the powerful capabilities of SnapMirror. They are realizing the benefits of NetApp technologies to take advantage of the capability to nondisruptively create replicas of live data, improving utilization from the equipment at disaster recovery sites and achieving better efficiencies overall. So whether it is disaster recovery, business intelligence, data distribution, or development and test, SnapMirror provides return on investment with up to a 60% lower TCO.

## Riverbed WAN Optimization

Riverbed Steelhead WAN optimization solutions improve the performance of business applications and data transfers across the WAN by overcoming the negative effects of high latency, packet loss, and limited bandwidth. Powered by the Riverbed Optimization System (RiOS), Steelhead WAN optimization solutions are capable of improving the performance of business applications by 5 to 50 times and, in some cases, by up to 100 times while also reducing WAN bandwidth requirements by up to 99%.

## NetApp and Riverbed

The combined NetApp SnapMirror and Riverbed Steelhead WAN optimization solution is for those who desire maximum performance without compromise. This best-in-class offering delivers performance up to 50 times greater for data replication and other critical business applications that

## KEY FEATURES

- Boost the performance of data replication up to 50 times or more
- Reduce capacity requirements for WAN infrastructure up to 99%
- Deliver consistent performance regardless of WAN latency, congestion, or quality

## SOLUTION COMPONENTS

The following components were used during testing and are depicted in the following figure:

- NetApp hardware: 2 x FAS3270
- Riverbed hardware: 2 x Riverbed Steelhead 7050-L (RiOS 7.0)
- 1 x WAN emulator (Apposite Linktropy)
- 2 x Gigabit Ethernet switch

traverse the WAN. At the same time it reduces the total cost of storage and WAN infrastructure. With this solution you can:

- Reduce data replication management overhead by 50%
- Improve RPO through increased replication frequency and up to 50 times faster data transfer performance
- Improve virtual storage efficiency by 90%
- Improve WAN infrastructure efficiency by up to 99%

### Riverbed WAN Optimization Technologies

**Transport streamlining** improves the performance of TCP-based applications by improving the way network transport protocols behave on WANs, reducing by 65% to 98% the number of TCP packets required to transfer data.

**Data streamlining** performs real-time byte-level data reduction and compression to dramatically expand the capacity of WAN links.

**Application streamlining** addresses application-specific bottlenecks in addition to the underlying data streamlining and transport streamlining optimizations.

**Network quality of service (QoS)** overcomes the negative effects of packet loss and gives you the ability to easily manage shared WAN infrastructure across applications.

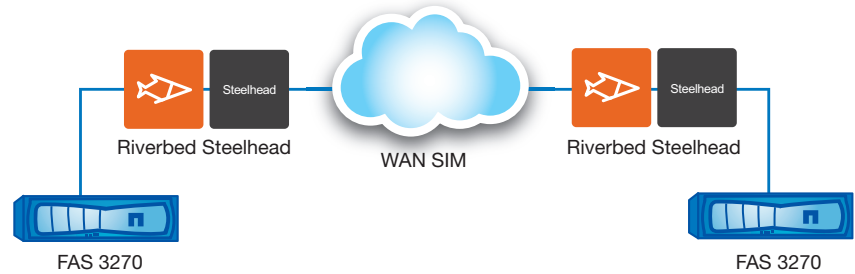


DIAGRAM: SNAPMIRROR + STEELHEAD SOLUTION

### Customer Success: Citi

**Background:** Citi has 4,000 branches worldwide. With the strictest data protection mandates, Citi increased the security of its data protection processes by transitioning from tape-based backups to WAN-based data replication with NetApp SnapMirror.

**Challenge:** Data protection SLAs were not being met due to poor WAN performance. The company wanted to avoid costly WAN bandwidth upgrades.

**Results:** Riverbed Steelhead appliances dramatically improved WAN performance, cutting the time to complete NetApp SnapMirror processes from 22.65 hours down to 3.43 hours and reducing WAN capacity requirements by up to 99%.

**Key benefits:** Citi cost-effectively increased the security of its data protection processes without compromising performance.

“NetApp SnapMirror replication works very well with our Riverbed Steelhead appliances to quickly mirror changes in our data from coast to coast, We’re seeing a 75% to 90% reduction in bandwidth usage for the SnapMirror replication, which allows us to replicate every half hour.”

Searl Tate  
Director of Engineering for Paul Hastings

#### ABOUT RIVERBED

Riverbed delivers performance for the globally connected enterprise. With Riverbed, enterprises can successfully and intelligently implement strategic initiatives without fear of compromising performance. Additional information about Riverbed (NASDAQ: RVBD) is available at [www.riverbed.com](http://www.riverbed.com).

#### ABOUT NETAPP

NetApp creates innovative storage and data management solutions that deliver outstanding cost efficiency and accelerate business breakthroughs. Discover our passion for helping companies around the world go further, faster at [www.netapp.com](http://www.netapp.com).