NetApp SnapMirror for Open Systems

Riverbed Steelhead Appliances Accelerate NetApp SnapMirror for Open Systems

NetApp SnapMirror for Open Systems

SnapMirror for Open Systems is state-of-the-art enterprise-class software for data replication and recovery across heterogeneous infrastructure that is easy to manage and cost effective. SnapMirror for Open Systems can continuously replicate any block data across any storage architecture (FC SAN, IP SAN, DAS, or internal disk) from any vendor, attached to any server (Windows®, UNIX®, Linux®, or virtual machines), over any distance, using an existing IP network. It is available in two configurations: host-based and fabric-based. Product offerings based on SnapMirror for Open Systems are available for disaster recovery (DR), for block data migration, and for nondisruptive replication of production data to secondary storage.

SnapMirror for Open Systems maintains an up-to-the-second replica of the production data at the recovery site and can be configured for asynchronous operations. SnapMirror for Open Systems guarantees data consistency across dependent volumes, federated databases, and applications that span multiple servers, leveraging its advanced clock-synchronization technology. This recovery-ready image enables application failover in minutes. More details on SnapMirror for Open Systems can be found at: http://www.netapp.com/products/enterprise-software/

Steelhead Appliances Accelerate NetApp SnapMirror for Open Systems

Steelhead appliances cut the amount of time it takes to complete replication and failback operations with SnapMirror for Open Systems. This enables organization to reduce data loss exposure and minimize required network bandwidth and costs. The optimized data replication procedures help enterprises build a robust disaster recovery plan and ensure the resiliency of corporate data.

The Riverbed Optimization System (RiOS™) utilizes industry-leading data streamlining and transport streamlining to provide data reduction, compression and transport protocol optimization. With, RiOS, enterprises can eliminate up to 98% of SnapMirror for Open Systems traffic on the WAN, allowing organizations to save on bandwidth costs while still supporting a strong DR strategy. By enhancing failback speeds, RiOS can also help SnapMirror for Open Systems customers quickly re-establish operations at their production site should an event involving data loss occur.

TEST RESULTS

- Replicate data more than 66 times faster
- Complete incremental replications more than 75 times faster
- Reduce bandwidth utilization by up to 98%

TESTING PARAMETERS

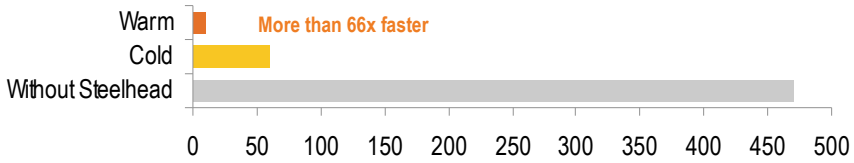
These tests were performed using two Windows 2003 Servers with Pentium 4 CPUs and two Solaris V880 4 CPU SPARC systems. Storage consisted of NetApp 3050 FC SAN with Brocade switches and Cisco switches and routers were used for the LAN core and perimeter.

The performance tests were run on a T1 WAN link with a latency of 100ms using Steelhead appliances. The testing methodology included an initial full replica of 5 GB of data to simulate replication and recovery, an incremental operation of 175 MB of data, and a modification of 612 MB of data.

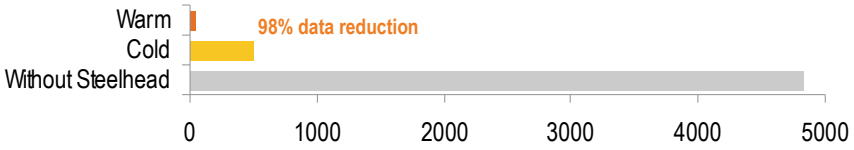
Performance Improvements

Test results show that Riverbed Steelhead appliances significantly accelerate NetApp SnapMirror for Open Systems, while also reducing WAN bandwidth utilization. An initial replication operation was completed 66 times faster with a decrease in bandwidth utilization of 98%. Steelhead appliances also completed an incremental replication 75 times faster.

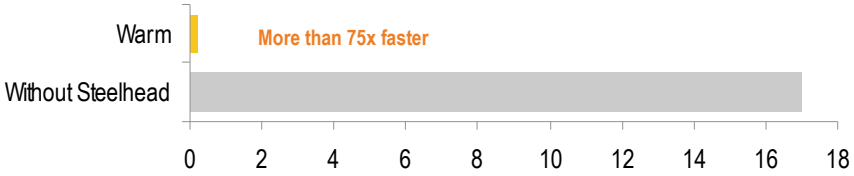
Time Improvement of Initial Replication of 5GB of Data via T1 link – Time to Complete (in minutes)



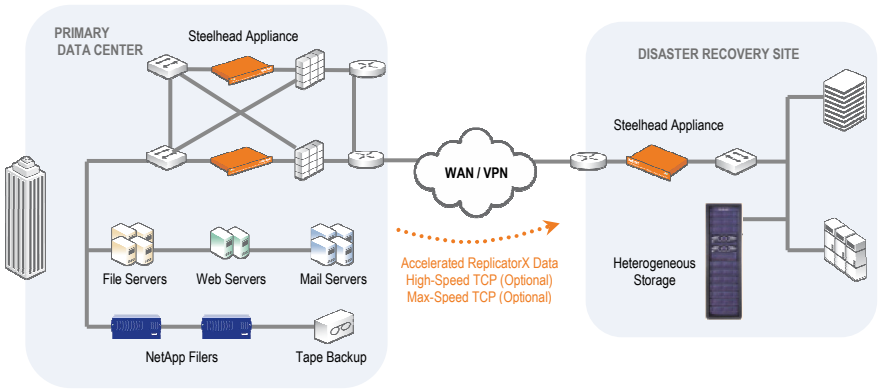
Full Restore of Initial Replication of 5GB of Data via T1 link - Bandwidth Utilization (in MB)



Incremental sync of 175MB of Data via T1 link - Time to Complete (in minutes)



Typical Deployment Architecture



DEPLOYMENT BENEFITS

Deploying Riverbed with NetApp SnapMirror for Open Systems produces significant benefits:

- **Reduced Data Loss Risk.** By enabling continuous replication, enterprises can lower their recovery point objective (RPO) and reduce their data loss risk.
- **Faster Replication and Failback.** Accelerating replication operations provides optimal data currency and significantly minimizes time failback to the production site.
- **Disaster Recovery Cost Savings.** Steelhead appliances significantly reduce bandwidth utilization for NetApp SnapMirror for Open Systems operations creating network cost-savings while alleviating WAN congestion.

Riverbed Optimization System (RiOS) Features

RiOS software combines patent-pending data reduction, TCP optimization, application-level latency optimizations, and remote office file and management functionality. Together, these technologies provide a comprehensive WAN optimization solution scaling across a range of applications and network topologies to accelerate applications from five to 50 times, and sometimes up to 100x. RiOS consists of four key components:

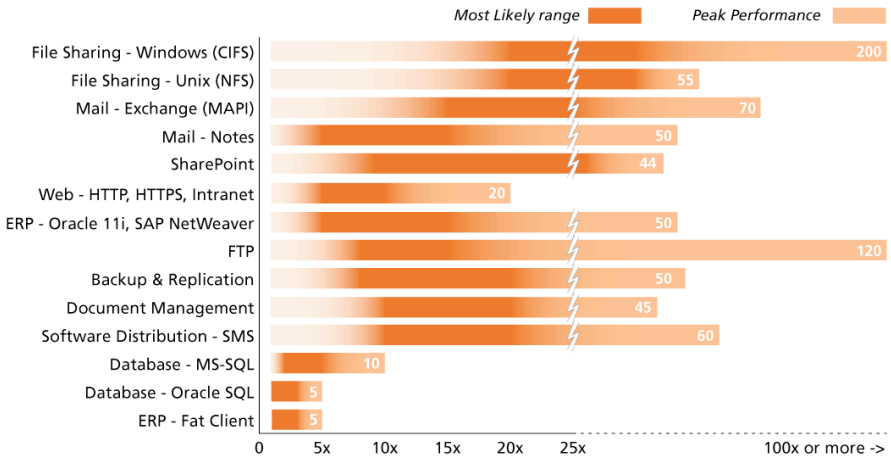
Data Streamlining – RiOS data streamlining works across all TCP applications to reduce bandwidth consumption by 60% to 95%. Data streamlining works across Windows file sharing, Microsoft Office, Email (including MS Exchange and Lotus Notes), SSL-encrypted applications, CAD, ERP, databases, and all other applications that use TCP, to ensure the same data is never sent more than once over the WAN. Data streamlining also supports rules-based policy administration of optimization classes and packet marking for QoS and route control.

Transport Streamlining – RiOS transport streamlining reduces the number of TCP packets required to transfer data by 65% to 98%. Transport streamlining overcomes TCP limitations by adapting transmission characteristics such as window scale, loss handling, congestion notification, and more. Transport streamlining also allows SSL-encrypted applications to be accelerated as well. RiOS Transport streamlining also enables greater utilization of high bandwidth, high latency connections with high-speed TCP and MX-TCP.

Application Streamlining – RiOS application streamlining provides additional order-of-magnitude application performance improvements by reducing application protocol chattiness up to 98% and minimizing application overhead. RiOS can provide massive throughput increases to applications including Windows file sharing (CIFS), Exchange (MAPI), Web (HTTP and HTTPS), and database (MS-SQL).

Management Streamlining – RiOS simplifies the deployment and management of application acceleration infrastructure by employing a transparent approach to communications. RiOS enables easy deployment through auto-discovery of peers and auto-interception of traffic, with no reconfiguration of clients, servers, or routers necessary. RiOS simplifies ongoing management by providing simple but powerful Web-based and command line interfaces (CLIS) and reporting, as well as integrated, centralized management and configuration.

Riverbed Steelhead appliances accelerate a wide range of applications



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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