



SEPATON and Riverbed

Centralized Disk-based Data Protection and Business Continuity

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High Performance, Centralized Data Protection

Technology is allowing enterprise organizations to provide more localized, personalized service than ever before. As a result, most enterprises have branch offices, factories and even regional headquarters that are hundreds of miles away from their data centers. To protect important data in these decentralized organizations and ensure its availability to users, many IT organizations are moving away from performing local backups on physical tape systems to performing centralized, company-wide backups to disk-based virtual tape libraries (VTL) over a wide area network (WAN). Centralizing backups to a VTL requires significantly less hardware, reduces both administration time and complexity, and solves the security problem associated with loose tape media. However, for this approach to be successful, companies need a network acceleration technology that facilitates faster backup and restores while eliminating the excess bandwidth consumption and performance bottlenecks that can result when data is moved across a WAN.

SEPATON: Industry-Leading Performance, Scalability for VTL

SEPATON enables organizations of any size to meet demanding data backup, restore, and retention requirements with the fastest and most scalable VTL in the market. An intelligent, disk-based backup/restore appliance, the S2100[®]-ES2 VTL appears to backup applications as a standard physical tape library. This high availability data protection solution significantly reduces storage, management, and recovery costs and its extensible design lets you add advanced features simply by loading ContentAware[™] applications such as DeltaStor[™] for more than 25:1 data de-duplication or Site^{2™} for secure off-site data vaulting.

Riverbed: Leader in WDS with the Fastest, Most Scalable and Easiest-to- Deploy Solution

Riverbed's Steelhead appliances accelerate all applications used over WANs, including centralized backup and recovery processes. They also dramatically reduce bandwidth usage, enable data and IT consolidation and facilitate unlimited scalability. By using Steelhead appliances to eliminate the constraints of latency and bandwidth, companies can centralize data protection and management and potentially save millions of dollars in the process. Steelhead appliances are an innovative wide-area data services (WDS) technology comprising several network acceleration technologies, including data reduction and compression as well as protocol and application optimization.

SEPATON S2100-ES2 and Riverbed Steelhead Appliances Joint Solution

SEPATON and Riverbed are committed to offering a highly effective joint solution that simplifies, centralizes, and accelerates data backup and restore processes in geographically dispersed organizations. In addition, in the wake of recent natural disasters and lost data, disaster recovery (DR) has become a major focus of most enterprises. SEPATON and Riverbed are committed to helping enterprises plan and implement an effective DR strategy. The details of the combined solutions are summarized below.

CENTRALIZED ENTERPRISE-WIDE DATA MANAGEMENT AND PROTECTION

The combined SEPATON S2100 and Riverbed Steelhead appliance solution lets you backup, restore, and retain data from all locations throughout a global enterprise in a single, cost-effective, scalable system that meets the most demanding requirements for data access, recovery, and protection.

Steelhead appliances optimize both remote office backup and restores across the WAN. Riverbed technology not only makes network-based backup feasible but also (in many cases) enables the use of existing WAN links without any bandwidth upgrades. Network-based backup allows you to consolidate data into a single data center on the SEPATON VTL to make backup data more secure and more easily accessible if restoration is needed. Riverbed optimizes the regular transfer of backup data over the WAN into the data center, and accelerates commercial backup software packages by eliminating the transfer of redundant data and minimizing the effects of latency on data transfer. Riverbed's approach goes well beyond the capabilities of other data reduction technologies by eliminating data redundancy across applications or servers. Riverbed enables organizations to achieve faster restores times to meet faster Recovery Time Objectives (RTO).

The S2100-ES2 VTL automates all processes and eliminates manual operations such as loading, unloading, labeling, and transporting tapes. It also eliminates the need to troubleshoot backup and disaster recovery processes in remote locations. The SEPATON S2100-ES2 VTL appears to backup applications like a standard physical tape library does not require changes to policies or procedures. This fully configured appliance can be installed in a few hours.

DISASTER RECOVERY AND BUSINESS CONTINUITY

The SEPATON/Riverbed combined solution enables companies to maximize the efficiency of disaster recovery by speeding data transfer to and from remote data centers. SEPATON's Site² electronic vaulting software provides a fast, simple, secure way to replicate data electronically to an off-site S2100-ES2 VTL for complete disaster protection.

As an essential part of this strategy, Riverbed speeds data replication applications and supports Site² to allow companies to transfer large volumes of data over the WAN to and from the DR site for backup and restoration. Riverbed facilitates the replication and transfer of data to the DR site through its Transport and Data Streamlining technology when using existing shared WAN links or through its High-Speed TCP capability when using dedicated high speed WAN interconnects.

Advanced Technology Cuts Backup, Restore and Disaster Recovery Times

The SEPATON/Riverbed solution lets you cut backup and restore times over a WAN. SEPATON is *six times faster (up to 8.6 TB/hour performance)* than any other VTL in the industry. It also delivers *twenty five times more capacity* to enable you to store up to 25 PB in a single appliance.

Riverbed's technology lets you maintain SEPATON's Fibre Channel wire-speed performance over a WAN. The Riverbed Optimization System (RiOS™) software that powers Riverbed's Steelhead appliance product family, accelerates applications by five to 50 (in some cases 100) times faster than conventional transport mechanisms with up to a 95% reduction in WAN bandwidth utilization. This technology delivers immediate benefits to remote data protection processes, transporting backup payloads that don't congest existing circuits and providing remote data recovery at rates fast enough to match the S2100-ES2 VTL performance.

DATA DE-DUPLICATION AND STREAMLINING

To eliminate duplicate data from backup sets, SEPATON offers DeltaStor™ software, the industry's most powerful data de-duplication technology. DeltaStor delivers more than 25:1 reduction in data capacity requirements.

This next-generation design includes built-in intelligence about file content and the backup data relationships of leading backup applications to deliver unparalleled speed, simplicity, scalability, and data integrity.

An advanced forward differencing feature enables DeltaStor software to find and restore data instantly. Unlike other de-duplication technologies that require files to be rebuilt before they are restored, DeltaStor software replaces older data with pointers to new duplicates to deliver instant restores of any file, regardless of age.

To eliminate redundant bytes from transfers, Steelhead appliances are aware of all the data that travels over the WAN and reads into every file to identify repeated data patterns. Whether that data is present in one or one hundred files, the Data Streamlining function ensures it never travels across the WAN twice. Unlike other data streamlining technologies that only reduce the raw redundancies of daily backups, the Steelhead appliance reduces the bandwidth resources these technologies need by 95%, completely eliminating backup-induced congestion on the WAN.

Proven Results

SEPATON and Riverbed tested remote vaulting on the combined S2100/Steelhead solutions using Steelhead 3510 (version 2.1.8) in three scenarios: with Exchange server data, Linux server data, and a combination of Exchange and Linux data. In each scenario, data was backed up over a WAN (20 Mbps) with Site². Latency was 50 msec, no loss and Site²'s send buffer was 16M.

Exchange Server Data

Replication of two 50-Gbyte backups of Exchange server across a WAN to a remote S2100-ES2 vault. The results:

- >2 to 5 times shorter backup times
- 6 to-54 times better bandwidth

Linux Data

93 Gbytes of Linux share data containing some amount of compressed data along with ISO's that was replicated over a WAN. The results:

- >2-4 times shorter backup times
- >2-90 times better bandwidth

Exchange and Linux Data

Simultaneous replication using two streams of 96 GBytes of warm Exchange data (backup from another day) and 90 Gbytes of Linux share data (close to 15-20% unseen data) over a WAN. The results:

- >4 times shorter backup times
- >11.5 times better bandwidth

Riverbed's Steelhead appliances enable the WAN, which would otherwise be at 100% usage, to be open to other applications

Performance will vary based on data patterns in each user environment and will be even better with the bigger appliances.

STREAMLINED DATA TRANSPORT

Steelhead appliances are designed to eliminate transport protocol inefficiencies. Inherent limitations to the TCP protocol introduce idle time and re-transmission of data streams, which lengthen overall data transport times by as much as 50 times beyond a circuit's optimal throughput rate. Transport streamlining incorporates both patented and industry-accepted features to fully maximize the power of TCP, including:

- Virtual window expansion
- Window scaling
- Explicit congestion notification
- Limited and fast retransmits
- Adaptive initial congestion windows
- Bandwidth delay control

OPTIMIZED APPLICATION WAN PERFORMANCE

To package and re-assemble data for transfer over a WAN, data protection processes use either proprietary agent-based protocols or the underlying application protocol. Where well-known file system protocols like NFS or CIFS are used, RiOS uses protocol-specific application streamlining to minimize the total number of round trips required to move large numbers of files. Steelhead appliances ensure data protection processes have maximum access to bandwidth when they need it by proxying client-server communications on both ends of the transfer and by executing proprietary transaction prediction algorithms.

SIMPLE IMPLEMENTATION AND MANAGEMENT

The combined S2100-ES2 and SteelHead technology appliances can be implemented in an existing infrastructure quickly and easily. Both SEPATON VTLs and Steelhead appliances can be administered through an intuitive command line interface or a feature-rich Web interfaces that also provides powerful insight into system status and traffic flows on the WAN.

Conclusion

The combination of SEPATON and Riverbed technologies enables enterprises to protect their business-critical, remote-site data in a simple, centralized solution. Application and protocol independent, Steelhead appliances will optimize all TCP traffic and can easily serve future initiatives to further centralize technology infrastructure up to and including remote file servers themselves. With SEPATON and Steelhead appliances, it is easy to roll out a low-cost, high-speed centralized VTL-based backup solution that will stay off the network and eliminate data protection headaches, beginning today.

For more information, or to schedule a demo, please contact:

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