

OVERVIEW

Riverbed® Granite™ solutions enable the complete virtualization and consolidation of edge applications, servers and storage to the data center, while projecting the applications and data to edge locations where they perform as if they were local.

Key Granite Benefits

- » Lower data center and edge server total cost of ownership
- » 100 percent consolidation, including storage
- » Fully virtualized edge servers
- » Central management of data, applications and servers
- » Increase data security

Granite consists of two components:

- » **Granite Core** – physical or virtual appliance that resides in the data center alongside centralized storage
- » **Granite Edge** – a service that runs as a standalone target at the edge or bundled with a Riverbed Steelhead® appliance

Granite Core mounts storage provisioned in the data center and extends it to branch offices running Granite Edge. Granite Edge virtually presents the data center storage targets for use in the branch and ensures that data created in branch office locations is securely stored in the data center. This industry-first file-system aware block acceleration capability allows data from centralized storage to be available wherever and whenever it is needed.

Granite solutions set a new architectural standard for the modern, fluid enterprise and enables complete consolidation. Organizations can now implement a more fluid architecture where application performance is accelerated regardless of location.

Riverbed Granite

Extend the virtual edge of the data center with edge-VSI

Granite™ products enable edge virtual server infrastructure (edge-VSI) an architectural disruption created by Riverbed Technology. It radically reduces operational burden on IT managers while massively increasing their control over the infrastructure—all at a lower total cost of ownership. Edge-VSI enables the best of all worlds: 100% consolidated data and applications that deliver LAN performance at the edge over the WAN.

In the past, data centers and remote offices were managed through separate operational processes, procedures and infrastructures. Organizations traditionally run applications and corresponding storage in edge environments close to end users for performance reasons. The demands of custom and write-intensive applications at the edge, the need to work with large data-sets that defy acceleration over a wide area network (WAN), and the concern of user productivity in the face of WAN outages have forced businesses to maintain storage resources at the edge, increasing IT footprint and introducing administration and infrastructure overhead. These resources however are difficult and expensive to manage, are growing at a fast pace, and introduce security vulnerabilities.

Edge-VSI addresses all of these issues by bridging the gap between the data center and global offices at the edge, allowing for seamless integration between data center and globally distributed operations. This new approach does for edge servers (locations outside of the data center) what virtual desktop infrastructure (VDI) did for desktops: allow IT to consolidate and manage all edge servers in the data center. Granite technology allows storage to be decoupled from its server over thousands of miles of distance, and actually work as if the storage were local to the server. End users at edge locations get uncompromised performance, while IT management is able to manage, backup, provision, patch, expand, and protect the data all within the four walls of the data center.

Granite solutions solve the problem of distance (bandwidth and latency) low in the tech stack: at the block level. File system intelligence at the block layer and other technologies parallelize the interactions between server and storage that was otherwise sequential. This innovation means that data and servers that used to be distributed can now reside centrally and users at the edge will not notice. It effectively projects the applications and data to the edge locations where they perform as if they were local.

Granite appliances enable IT departments, for the first time, to embrace a more fluid architecture by overcoming the barriers of distance for storage while maintaining the performance characteristics required in the branch. Organizations can enhance business agility and gain significant operational and financial benefits by:

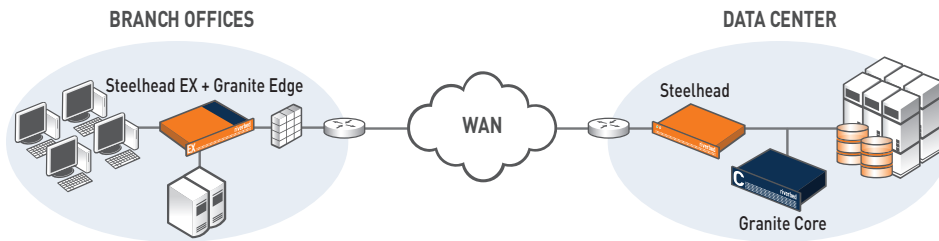
- Enabling LAN access to and rapid recovery of centrally stored data
- Delivering an accelerated end-user experience regardless of location
- Providing flexibility and scalability in branch infrastructure
- Simplifying data protection operations
- Achieving greater economies of scale for storage in the data center
- Simplifying management

Granite with BlockStream technology extends data center storage to branch locations, enabling users and applications to write and access centrally managed data, server images and applications over the WAN at LAN speeds. With Granite, data is available at the edge with the added benefit of ensuring that any data created in branch office locations is securely stored in the data center.

Benefits

Complete Server and Storage Consolidation

Certain business applications still require local servers and storage to meet the performance requirements of end users. With Granite products, IT can successfully separate branch computing from data storage eliminating the need to purchase and support servers and storage traditionally hosted in branch offices for performance reasons. With Granite, IT can successfully separate branch computing from data storage eliminating the need to purchase and support servers and storage traditionally hosted in branch offices for performance reasons.



Resiliency to WAN Outages

Though storage has been completely centralized, Granite appliances enable remote office workers to have local access to data even when the WAN link to the office goes down.

Centralized Data Protection

Services and data are protected and secured in the data center leveraging the same tools and methodologies applied to all corporate data. This eliminates the need to purchase, install, and manage a backup solution in the branch office.

Secured Data

With storage in the branch, data is exposed to risk. Granite products enable organizations to use state-of-the-art authentication and encryption to ensure the security of data assets while in-flight from the data center as well as in the branch.

Simplified Management

By eliminating the need to maintain storage in branch offices, organizations can reduce administration costs by leveraging standardized data center-centric policies and procedures. All data management and support activities can take place in the data center. Branch-based IT personnel and "fly and fix" missions are no longer required.

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.



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