SteelFusion

Software-Defined Edge Solution
A Platform for Edge IT

In today's digital economy, the edge is where business gets done but has become increasingly more complex for IT to manage with a growing mix of cloud and traditional applications. Riverbed® SteelFusion™ is the first and only software-defined edge solution that delivers local performance while enabling remote data and backup centralization, instant provisioning/recovery, and lower TCO for distributed organizations. SteelFusion provides organizations with the ability to software-define their edge IT with a broad storage, compute, and cloud ecosystem. Organizations get the flexibility to leverage and maximize the value of their centralized investments in backend storage—traditional storage arrays or hyper-converged infrastructure (iSCSI, Fiber Channel, NFS), or cloud platforms (AWS, Azure, IBM Cloud), virtualization, backup licensing, and full-time IT staff and extend them to remote edge locations running on a single dedicated appliance or via software running on compliant commodity server hardware.

Only SteelFusion delivers a modern, cloud-like experience to IT organizations managing increasingly complex and mission critical remote office/branch office (ROBO) locations in today's digital world. Unlike traditional Do-It-Yourself (DIY) approaches or Hyper-converged Infrastructures designed for data centers, SteelFusion enables "stateless" branch services

eliminating the need for servers, storage, and inefficient backup processes at ROBO sites that non-IT on-site personnel often have to manage.

Users access applications running locally at the ROBO site while primary data is stored in the data center or public cloud, reducing the risk of data loss. Decoupling compute from storage, the SteelFusion solution delivers local performance and capacity without requiring a storage-intensive architecture in the branch. This significantly reduces required branch infrastructure and centralizes costly IT operations such as backup/recovery and the provisioning of new edge IT services.

SteelFusion delivers IT agility with instant provisioning, backup, and instant recovery for branch offices, and ensures continuous operations when disasters occur such as inclement weather, fire, and human-induced outages. Integrated into SteelFusion is the industry-leading SteelHead technology for WAN Optimization, which enables unrivaled performance and applications that simply work for employees and customers located at remote sites who are the growth engine to any business. With SteelFusion, businesses can instantly provision new services and restore operations in a matter of minutes vs. days, centrally protect and secure data, deliver the kind of performance expected from locally run applications, and significantly lower the TCO of branch and remote offices.

SteelFusion Consists of Two Components:

SteelFusion Edge

A dedicated appliance or SteelFusion software installed on prescribed 3rd party servers, which uniquely integrates server, storage, network, and virtualization to run local ROBO applications, eliminating the need for additional branch infrastructure.

SteelFusion Core

A storage delivery controller that interfaces with SAN and/or NAS storage arrays in the data center, or public cloud-based storage for additional flexibility.

As depicted in the diagram on page 4, there are three deployment options to choose from when consolidating ROBO data, apps, and services:

• Leverage data center storage (FC, iSCSI, NFS)

• Directly leverage IBM Cloud storage (i.e. SoftLayer)

• AWS or Azure storage via cloud gateways

Business Challenge

As the number of remote locations grow, organizations deploy more and more infrastructure to deliver applications and data efficiently and reliably, and maintain an acceptable level of productivity. As business grows, important company data stored in remote locations multiplies exponentially, and if left unprotected, leaves the company at risk. This proliferation results in islands of distributed remote infrastructure that are necessary to meet local performance and reliability needs, but that are costly, risky, and inefficient to manage. Companies rarely have the IT expertise in remote sites to easily maintain such distributed infrastructure. This increases business risk due to outages, obsolescence, and data loss. When remote sites go down because of natural or man-made disasters or human error the costs are huge. It can take days, weeks, or longer to fully recover.

In an IT world of hybrid and distributed everything, the challenges are complex and costly. Approaching these challenges in the same way as we did in the days when the data center was the center of IT everything, will not drive a new result. Today's digital organizations need

a solution that brings centralization, flexibility, and automation to edge IT, so that there is minimal infrastructure to maintain. It should eliminate much of the operational expense and heavy lifting on IT, and like the benefits of the cloud, it should roll-out services when they need them, how they need them, and where they need them, all while ensuring their most critical corporate asset outside of employees themselves— data—is protected.

Key Benefits

Security and Data Protection

Mitigate risks associated with data in remote locations.

Control

- Consolidate data back to the data center, removing sensitive information from high-risk remote locations
- Render data on stolen appliances or drives inaccessible without admin authentication

Encryption

- Ensure data at rest is safe using AES 256-bit encryption, compliant with HIPAA and Top Secret standards
- Protect data in-flight with industry-standard SSL or IPSEC encryption
- Reduce risk by maintaining only a limited set of active data blocks at remote locations

Productivity

Deliver superior application performance for branch and remote office productivity.

Optimization, Visibility, Control

- Increases application and data transfer performance up to 100x
- Improves visibility with application, network, and end user monitoring
- Dynamically selects the best application path based on business intent and network availability

Business Continuity

Improve disaster recovery readiness and reduce downtime.

Disaster Recovery and Avoidance

- Reduce data loss with near real-time synchronization of data to the data center
- Rapidly recover from disasters by deploying VMs from the data center to the edge
- Spin up VMs in the data center and edges connect to those VM's over VPN when remote locations experience or expect interruption

Data Protection

- Centralized data protection to benefit from mature enterprise-class practices in the data center/cloud
- Eliminate the need to purchase, install, and manage dedicated branch backup solutions

Hardware Flexibility

- Deploy software to meet customized compute and connectivity needs
- Application delivery on commercial off the shelf servers
- Leverage centralized enterprise-class storage of any class (NAS, SAN, HCI)

Agility

Reduce capital and operational costs, simplify IT practices, and deliver new services with velocity and ease.

Consolidation and Centralization

- Centralize branch servers and storage while maintaining local performance
- Slash branch IT costs by eliminating the need to purchase and maintain branch servers and storage
- Significant reduction of operational overhead and costs
- Drive greater utilization of data center storage investments

Simplified Management

- Streamline deployment with intuitive configuration wizards
- Reduce branch administration costs by leveraging standardized data center policies and procedures
- Centralize control to eliminate the need for remote IT personnel or "fly and fix" missions
- Quickly provision new applications, IT services to remote and branch offices, or entirely new sites in minutes from the data center

Cloud Services

- Completely replace or augment data center storage with public cloud storage for ROBO consumption
- Extend cloud services to ROBO edge without any performance penalty
- Enable storage consolidation strategy for hybrid cloud deployments
- Provide secondary storage options for additional capacity, cloud-based backups or storage tiering

Key Features of SteelFusion

Out of the box, SteelFusion features four technologies that work together to deliver local performance from the data center or cloud to the branch:

Integrated storage delivery: BlockStream™

BlockStream is a Riverbed-patented technology that centralizes data in the data center and projects a working set out to the branch. It combines three capabilities:

- An authoritative block cache built into the SteelFusion Edge appliance
- A pre-fetch algorithm that predicts and delivers required data to branch locations
- Data deduplication technology that reduces the amount of data transferred between Edge and Core

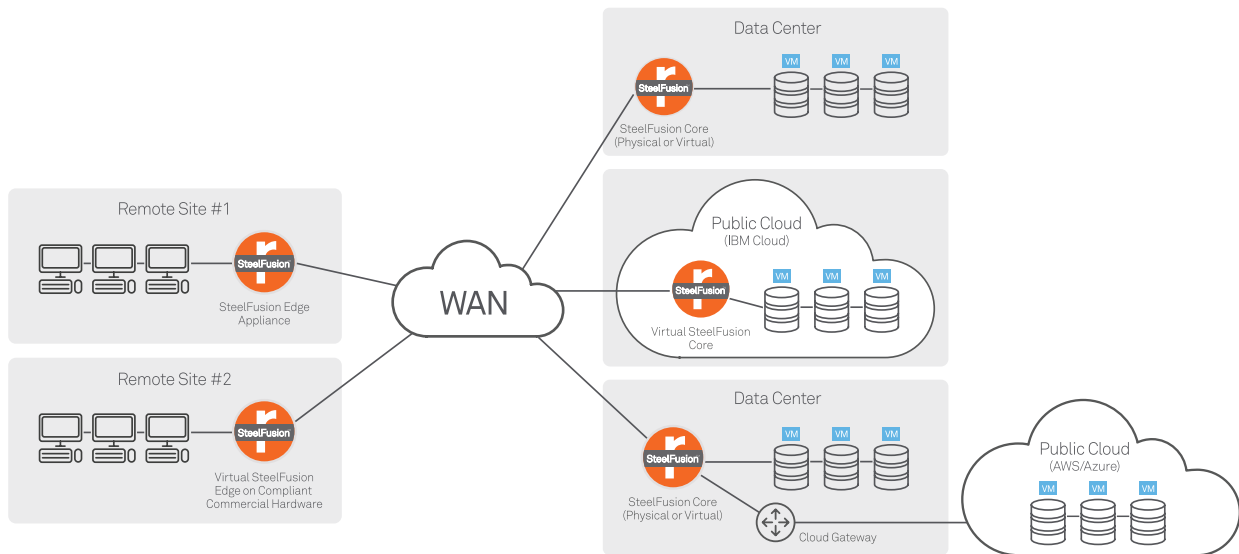## Branch-optimized virtualization: Virtual Services Platform (VSP)

The SteelFusion Edge appliance contains a fully integrated instance of the VMware® vSphere® hypervisor, optimized to run remotely on a hardened branch appliance. Customers benefit from having the industry-standard virtualization platform, which can be managed with existing tools and capabilities. SteelFusion simply and seamlessly appears as a standard host in existing VMware vSphere and vCenter Server™ management tools.

Built-in WAN optimization: SteelHead™

SteelFusion contains an integrated instance of the industry's #1 WAN optimization solution — Riverbed SteelHead. WAN optimization helps further streamline branch infrastructure by accelerating all branch user application and data traffic at the fastest speeds across the optimal networks at the lowest cost

Data center Disaster Recovery: FusionSync™

FusionSync synchronizes branch-office data to a secondary private or hybrid cloud location, ensuring all branches VM data is up to date across environments. During data center outages, the secondary environment becomes primary and all branch traffic is seamlessly directed to and from the alternate location. FusionSync eliminates the need to deploy and maintain a separate replication solution to protect branch office data across data centers, dramatically simplifying DR practices.

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