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Virtual SteelFusion Edge

Software-Defined Edge Solution on Industry-Standard Server Hardware

Riverbed® SteelFusion™ is the first and only hyper-converged infrastructure that delivers local performance while enabling data centralization, instant provisioning/recovery, and lower TCO for distributed organizations. Through select distributors, Riverbed is now offering the Virtual SteelFusion Edge in a prepackaged software-defined edge solution built on off-the-shelf industry standard servers.

A truly unique solution for distributed organizations, SteelFusion delivers IT agility by centralizing remote operations with instant provisioning, backup, and recovery for remote applications, data, services or entire sites, without any compromise to application performance at the edge. With Virtual SteelFusion Edge, organizations can quickly make the move to a software-defined edge solution, bringing additional flexibility to the SteelFusion Edge by offering it on commercial, off-the-shelf server hardware. Ideal for enterprises that must adhere to site or corporate specifications, the Virtual SteelFusion Edge expands deployment capabilities with the same functionality as the SteelFusion physical edge appliance. Deployed with a SteelFusion Core in the data center, it eliminates the challenges of remote office/branch office (ROBO) IT by consolidating the data and centralizing typically manual and hands-on remote operations to the data center or public cloud, without any degradation of application performance at remote sites.

Users access applications running locally in the branch while primary data is stored in the data center, eliminating the risk of data loss. Decoupling compute from storage, the SteelFusion hyper- converged edge infrastructure delivers local performance and capacity without requiring a storage-intensive architecture in the branch. This significantly reduces required remote infrastructure and centralizes management of remote services. Unlike traditional Do-It-Yourself (DIY) approaches or Hyper-converged Infrastructures (HCI), SteelFusion enables "stateless" Edge IT, which translates to significantly lower operational cost to the business.

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.

Virtual SteelFusion Edge Details

Virtual SteelFusion Edge

Installing SteelFusion software on compliant commercial servers transforms the system into a multi-purpose device that integrates server, storage, network, and virtualization to run local ROBO applications.

vSFED must meet the following hardware requirements:

- VMware Certified Server Hardware
  (ESXi 6.0 and above)

- System chipset must support VT-D/X
  (Intel's device level virtualization)

- Separate Storage (at least 16GB to install ESXi 6.0)
  – This can be SDHC, flash, or M2 SATA port

- Storage Requirements
  – Power failure resistant RAID controller with at least 512 MB of NVRAM
  – At least 2 SSD drives exported by the RAID controlled as a single RAID1/10 volume
  – At least 2 HDD drives exported by the RAID controller as a single RAID 1/10 volume

Block Diagram
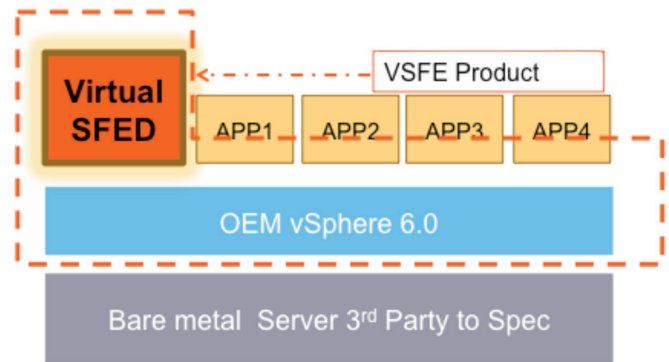
Tech Specs

Model	VSFE 1000			VSFE 1100			VSFE 1200			
Configuration	W0	W1	W2	W0	W1	W2	W0	W1	W2	W3
Upgradeable to	W1/W2	W2	-	W1/W2	W2	-	W1/W2/W3	W2/W3	W3	-
Blockstore Size (GB)	500	500	500	1,000	1,000	1,000	5,000	5,000	5,000	5,000
SteelHead Datastore (GB)	70	70	70	102	102	102	280	280	280	280
Advanced Tiering Cache (GB)	50	50	50	100	100	100	500	500	500	500
Bandwidth	10	10	20	20	20	30	30	30	50	100
# Connections	N / A	1,500	3,500	N / A	3,500	4,500	N / A	4,500	6,000	10,000
CPU (# Cores)	4	4	4	4	4	4	6	6	6	6
Memory (GB)	16	16	16	16	16	16	48	48	48	48

Key Benefits

Security and Data Protection

Mitigate risks associated with data in remote locations.

Control

- Control data in the data center, removing sensitive information from high-risk 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 projecting VMs from the data center to the branch
- Start VMs in the data center when remote locations experience or expect interruption

Data Protection

- Centralize data protection to benefit from mature enterprise-class practices
- 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

Agility

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

Consolidation and Centralization

- Centralize branch servers, storage, and backup while maintaining local performance

- Slash branch IT costs by eliminating the need to purchase and maintain branch servers and storage
- Drive greater utilization of data center storage investments

Simplified Management

- 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
- In minutes, quickly provision new applications, IT services, or entirely new remote sites from the data center
- Quickly provision new applications, IT services to remote and branch offices, or entirely new sites in minutes from the data center

Cloud Services

- Enable comprehensive storage consolidation strategy for hybrid cloud deployments
- Provide secondary storage options for additional capacity, cloud-based backups or storage tiering
- Harness hybrid approach by having select ROBOs/Apps leverage the cloud for storage needs
- Decrease overall storage costs
- Enable ROBO sites to extend their storage needs into the cloud without any performance penalty

Key Features of Virtual SteelFusion Edge

Out of the box, SteelFusion features three technologies that work together to deliver local performance from the data center 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 coines three capabilities: 1) an authoritative block cache built into the SteelFusion Edge hyper-converged appliance; 2) a pre-fetch algorithm that predicts and delivers required data to branch locations; and 3) data deduplication technology that reduces the amount of data transferred between Edge and Core.

Flexible Compute Resources

The Virtual SteelFusion Edge comes built into the base hardware configuration from Dell or HP, as described above. The configuration also includes a licensed VMware vSphere foundations license, which can be upgraded. You have the option to extend the capabilities of that branch platform by extending compute and memory resources, as well as adding peripherals, graphics processors or additional networking / wireless / serial connectivity options to meet the specific requirements of workloads in each remote site.
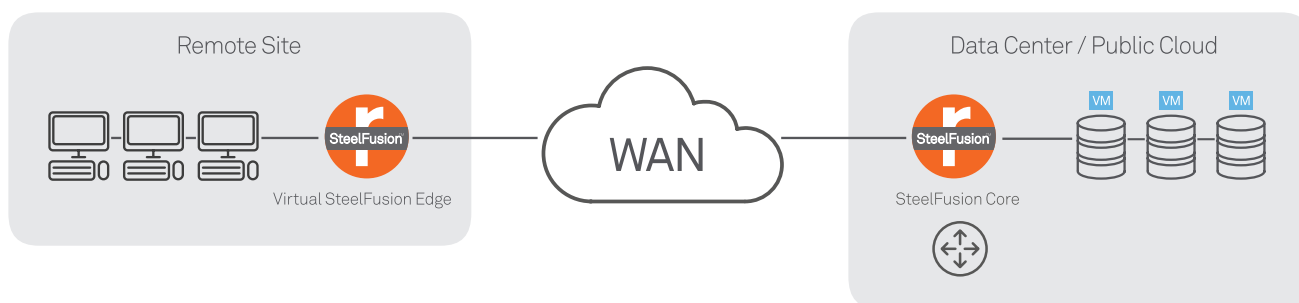
Built-in WAN Optimization: SteelHead™

SteelFusion contains an integrated instance of the industry's #1 WAN optimization solution—Riverbed SteelHead. WAN optimization helps further streamline branch and remote office IT by accelerating all branch user application and data traffic at the fastest speeds across the optimal networks , from on-premises locations as well as and cloud environments (SaaS/IaaS).

End to End Resiliency

With the SteelFusion solution customers can achieve end-to-end resiliency for valuable intellectual property created in their ROBO locations. The Virtual SteelFusion Edge solution is built on a platform that includes component and disk level redundancy using RAID controllers so a single disk failure doesn't compromise the availability of an entire branch. With optional high availability options application workloads can seamlessly failover to a standby host ensuring maximum uptime. To protect against site level failures caused by power failure, natural disasters, etc, data is continuously transferred to the data center where it resides on enterprise grade storage with the ability to create additional point in time copies of data (snapshots) to recover back to in the event of corruption. Finally, to protect against data center or storage failure customers can implement SteelFusion FusionSync™, which eliminates the need to deploy and maintain a separate replication solution to protect critical branch office data across data centers.

Remote Site — Virtual SteelFusion Edge — WAN — Data Center / Public Cloud — SteelFusion Core

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