Riverbed SteelHead

Managing application performance in a hybrid world

Today, employees, customers, and partners have become increasingly mobile, and more business-critical applications are moving to public clouds for Software-as-a-Service (SaaS).

Network managers are leveraging a combination of hybrid networks that include MPLS for business-critical applications and compliance, Internet VPN, and the lower cost, public Internet for real-time application delivery to location-independent users. This defines the hybrid enterprise.

Riverbed® SteelHead™ solutions deliver comprehensive visibility, optimization and control of all applications, including on-premises and cloud-based applications, to deliver extraordinary application performance no matter where users are located or when changes in business requirements occur—providing you with the flexibility for your business to stay agile.

Riverbed: A leader in the Gartner Magic Quadrant for 9 consecutive years

Magic Quadrant for WAN Optimization
Source: Gartner (May 16, 2016) – Bjarne Munch, Neil Rickard, Danilo Ciscato

Managing application performance in a hybrid world

Visibility. Optimization. Control.

Companies of all sizes depend on Riverbed to improve the performance of all applications across the hybrid enterprise. Increased visibility into and control of both on-premises and cloud-based applications help improve end-user experience and reduce the complexity of managing performance over hybrid networks.

Key Benefits

Application acceleration and reduced bandwidth consumption

- Increase performance over hybrid networks for on-premises, cloud, and SaaS applications up to 100x

- Reduce bandwidth utilization by up to 98%, deferring costly network bandwidth upgrades

- Ensure the best performance for the largest number of applications on premise, in the cloud or SaaS applications including Microsoft Office 365, Microsoft Dynamics CRM, Salesforce.com and Box

Integrated visibility

- Enables faster, more effective troubleshooting with end user experience visibility into SteelHead-optimized and non-optimized applications

- Quickly discern network from SaaS provider problems with visibility into network versus service provider server delays

Enhanced control

- Easily translate your business intent into application-centric business policies with a simplified, wizard-like approach

- Quickly derive all path possibilities for applications across hybrid networks to facilitate configuration

- Leverage centralized, application-aware policies to simplify and automate configuration and deployment of network services across hybrid networks

- Secure all traffic between SteelHead solutions across private and Internet links with standards-based encryption for added security and regulatory compliance

# Optimization delivery of applications across hybrid networks

Industry-leading SteelHead optimization capabilities for hybrid networking allow you to deliver performance up to 100x faster for on-premises, cloud, and SaaS application users everywhere.

More effective and efficient collaboration:
### Application-level latency optimization for Microsoft SharePoint

Microsoft SharePoint performance — time to complete (in seconds)

Unreliable network connections, constantly changing locations, distance, and network latency often make it difficult for applications to perform as expected. For effective and efficient collaboration, it is essential to provide quick document check-in/check-out performance to all team members, regardless of where they are when trying to connect or their distance from the server.

SteelHead solutions perform application-level latency optimization for Microsoft SharePoint and greatly enhance user experience by optimizing and accelerating application protocols such as Front Page Server Extension (FPSE) and Web Distributed Authoring and Versioning (WebDAV).
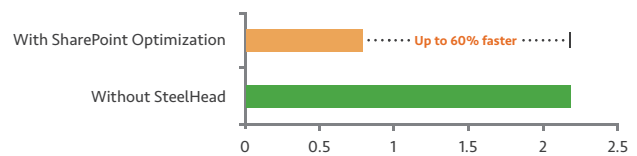
File Open of Word Documents-60% Faster with SteelHead Optimization
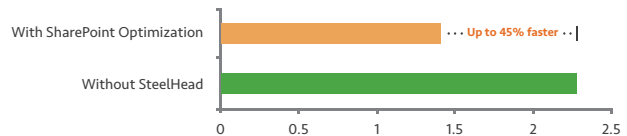
Accessing a SharePoint WebDAV Share-45% Faster with SteelHead Optimization
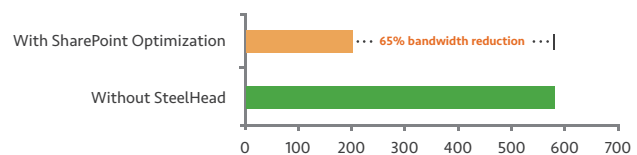
File Open of Word Documents - Data Transferred (KB)–65% Bandwidth Reduction with SteelHead Optimization

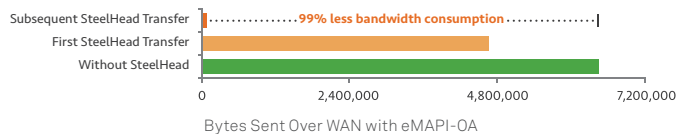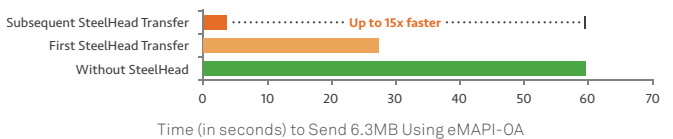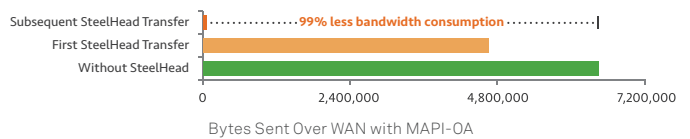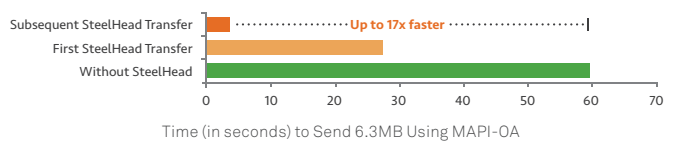# Optimization delivery of applications across hybrid networks

Performance improvements for email:
Reduced complexity and expense of Microsoft Exchange

Sending and receiving regular email with an attachment using regular Microsoft Outlook Anywhere (OA) and encrypted OA — time to complete (in seconds)

SteelHead solutions dramatically accelerate email operations and significantly reduce bandwidth utilization. By improving email performance, employee productivity increases, IT has fewer complaints, and other network applications perform better when networks are no longer congested by redundant email traffic.

By dramatically reducing redundant email traffic, you also can avoid bandwidth upgrades or even reduce bandwidth costs for branch offices, as well as consolidate Microsoft Exchange servers, dramatically reducing infrastructure complexity, and capital and operational expenses for Exchange. SteelHead appliances can increase email speed by as much as 17x, depending on the use case— for example, sending and receiving regular email with an attachment using Microsoft Outlook Anywhere.

Time (in seconds) to Send 6.3MB Using MAPI-OA

Bytes Sent Over WAN with MAPI-OA

Time (in seconds) to Send 6.3MB Using eMAPI-OA

Bytes Sent Over WAN with eMAPI-OA

Optimization delivery of applications across hybrid networks

Enabling a remote workforce: Anywhere access

SharePoint HTTP File Save: 6.14MP file via Verizon Wireless v620 broadband card (788kps with ~200 ms RTT latency)-time to complete (in seconds)

SharePoint HTTP File Save—63x Faster with SteelHead Mobile

It can be a struggle to support mobile users who need access to corporate data and applications from anywhere. Our mobile optimization solution can help you address the inherent problems of a distributed workforce, such as high latency and inconsistent connectivity resulting from changing locations. This enables you to increase employee productivity wherever employees work.

SteelHead Mobile extends our award-winning technology to any desktop or laptop to deliver acceleration wherever users connect. Application speed is no longer a barrier to mobility with additional SteelHead application optimizations, scalability, and a flexible management tool for streamlining provisioning for mobile workers.

Now you can deliver leading-edge application acceleration to largescale deployments of mobile workers wherever they connect to the network. With SteelHead Mobile, applications run faster and remote workers have the applications they need anytime, anywhere.

"Microsoft SharePoint is vital to our success, and Riverbed has played a critical role in enabling our distributed employees to be productive and collaborative. With the new SharePoint 2013 optimization from Riverbed, we will be able to take advantage of the new features in SharePoint, which is a strategic part of our continued success and growth."

Kurt Anderson
CIO, GeoEngineers

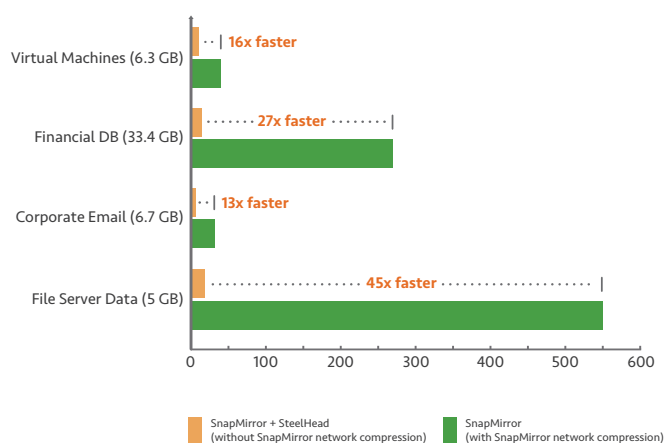# Optimization delivery of applications across hybrid networks

Disaster Recovery: Protect more data, more often, with less risk and cost using data center-to-data center optimization

NetApp SnapMirror network compression and SteelHead WAN optimization over 155Mbps WAN-time to complete (in minutes)

SteelHead solutions also help your organization optimize continuity and recovery across a range of backup, replication, and cloud storage mechanisms without disrupting your current infrastructure—ensuring the protection of existing investments.

With SteelHead solutions, you can perform backups or data replication rapidly without struggling to finish jobs in a tight backup window. They support leading enterprise-storage solutions, including EMC and Hitachi Data Systems, as well as NetApp data replication and disaster recovery solutions.

With accelerated replication—up to 45x—you can dramatically improve your recovery time in the event of a failure. Advanced features for high-end, data center-to-data center disaster recovery include enhancements for optimized throughput, tunable compression, and clustering for high availability and scalability. You also can use SteelHead solutions to dynamically adapt to "fill the pipe" for high-bandwidth environments, or to adopt higher compression, deduplication, QoS, traffic identification, and path selection to limit the impact on bandwidth for other applications on shared networks.

Virtual Machines (6.3 GB) — 16x faster
Financial DB (33.4 GB) — 27x faster
Corporate Email (6.7 GB) — 13x faster
File Server Data (5 GB) — 45x faster

0   100   200   300   400   500   600

SnapMirror + SteelHead (without SnapMirror network compression)
SnapMirror (with SnapMirror network compression)

SnapMirror Data Replication—Accelerated Application Performance with SteelHead Optimization

Accelerating applications to and from the cloud

Whether you are creating a private cloud infrastructure, utilizing Infrastructure-as-a-Service (IaaS) providers such as Amazon Web Services (AWS), Microsoft Azure, or VMware vCloud Air, or outsourcing to SaaS providers such as Salesforce.com or Microsoft Office 365, the limitations on network bandwidth and latency still remain. Users are far away from the data and applications they are trying to access, resulting in inefficient, slower application and data delivery and poor user experience.

Deploying SteelHead solutions is a great way to defeat both these problems while also saving money on costly bandwidth upgrades. Compatibility with Azure, AWS, and VMware ESX-based cloud and vCloud Air environments offers you the freedom to deploy applications in nearly any cloud and move between cloud providers with ease. SteelHead accelerates 90% of major cloud providers and has been certified for Azure and vCloud Air.

"It was just amazing how much better Office 365 was with Riverbed: 300% performance improvement in some cases, sub-second response times now for anything—you wouldn't know Office 365 was in Singapore."

Branko Ceran
CIO, MTC Work Solutions

SteelHead GeoIQ for Office 365 guarantees users always have full optimization for their Office 365 mailbox no matter where the Office 365 mailbox or the user is located. SteelHead detects and routes Office 365 flows directly to the user mailbox, across the quicker, secure, intelligent Akamai network ensuring complete, end-to-end optimization.

"It's incredible how quickly we got Riverbed up and running. We were replicating data to the cloud in about 30 minutes."

Nakul Kapadia
Vice President of IT, EnvisionRxOptions
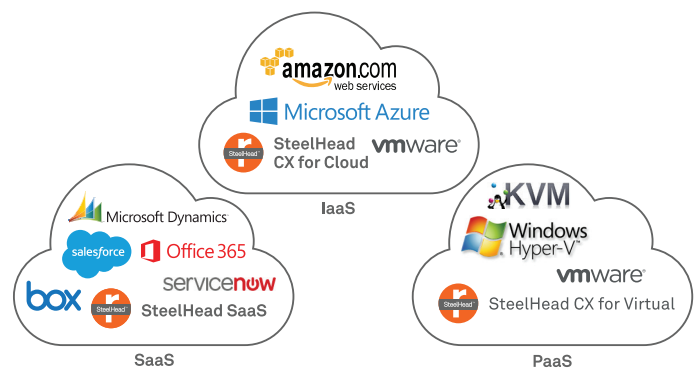
SteelHead optimizations regardless of location—you decide where the data and applications live. We'll make sure they are optimized.

SteelHead: The power behind the hybrid enterprise

All SteelHead solutions offer a combination of data, transport, and application streamlining, and path selection. These technologies, along with SteelHead management capabilities, provide a comprehensive solution for the hybrid enterprise.

SteelHead: Four streamlining technologies

Data Streamlining

- Uses patented, scalable, data referencing technology to reduce the bandwidth used to transmit data by up to 99%

- Provides industry-leading scalability and patented deduplication

- Works with TCP-based protocols and applications, including file sharing (CIFS/SMB), Web applications (HTTP and HTTPS), database software (Oracle), and collaboration tools (CAD, SharePoint, email)

- Works with UDP-based file transfer applications, including Signiant, Aspera, and Symantec's Veritas Volume Replicator

Transport Streamlining

- Reduces the number of TCP packets required to transfer data by 65-98%

- Enables the acceleration of SSL-encrypted traffic to eliminate the security versus performance trade-offs

- Improves end user experience and reduces traffic over direct Internet connections with a fully embedded, transparent HTTP(S) proxy for local connection termination and Web object caching, including video

- Enables greater utilization of highbandwidth links (long, fat networks, such as OC3, OC12, and metrofiber) for HS-TCP and MX-TCP

- Supports satellite optimization for TCP links (based on SCPS extensions) over satellite connections that tend to be high latency, dynamic bandwidth, or lossy due to signal-to-noise ratio

Application Streamlining

- Offers the broadest support for application-specific modules to provide performance improvements on top of the data and transport streamlining optimization performed on all TCP traffic

- Reduces application protocol chattiness up to 98%

- Minimizes application overhead to provide massive throughput increases to applications such as file sharing (CIFS, SMB2/3, and NFS), collaboration software (SharePoint), email (Exchange and IBM Lotus Notes), cloud-based SaaS offerings (Office 365 and Salesforce), Web applications (HTTP and HTTPS), database (Oracle), and storage and disaster recovery (NetApp SnapMirror and EMC SRDF/A)

Management Streamlining

- Enables easy deployment through auto-discovery of peers and auto-interception of traffic—with no reconfiguration of clients, servers, or routers

- Simplifies ongoing management by providing simple but powerful Web-based and command-line interfaces, in-depth reporting, and real-time NetFlow export

- Supports a vast array of network environments and topologies, including but not limited to MPLS, VoIP, video conferencing, QoS, VPN, satellite infrastructure, ATM, frame relay, microwave, and wireless

- Streamlines configuration and management of hybrid networks with centrally managed, application-centric network service policies like path selection and QoS

Solutions for any environment and organization

SteelHead CX

Reduce bandwidth up to 95% and accelerate performance up to 100x with a dedicated optimization solution. Speed the transfer of data and applications to and from data centers and branch offices over the Internet and MPLS networks. SteelHead CX supports up to 1 million connections through an intelligent, scale-as-you-grow performance architecture.

SteelHead Interceptor

Scale network-wide throughput easily and ensure the most efficient load-balancing with the only solution to assess SteelHead pressures and fair peering to steer traffic to the optimal SteelHead and continue high-availability operations by diverting to fully functional SteelHead instances in the event of either a SteelHead instance or a network failure.

SteelHead CX for Cloud Deployments

Extend subscription-based optimization to IaaS clouds. Authorized servers redirect connections to the appropriate SteelHead CX to accelerate the performance of 90% of major cloud providers—certified for Microsoft Azure and VMware vCloud Air.

SteelHead CX for Virtual Deployments

Application performance and data transfer benefits in a virtual form. Extend optimization and performance to KVM, VMware vSphere (ESXi 5.5), vCloud Air (Certified), and Microsoft Hyper-V Server 2012-based virtual environments.

SteelHead SaaS

Accelerate and manage the delivery of business-critical data and content from SaaS providers—overcoming application latency, bandwidth constraints and competition among applications. SteelHead SaaS improves the performance of SaaS applications, including Salesforce.com, ServiceNow, Box, Microsoft Dynamics CRM online and Office 365, by up to 33x.

SteelHead Mobile

Improve mobile and remote user productivity and experience across hybrid networks with optimization designed for Windows and Mac-based laptops and Windows Surface tablets. SteelHead Mobile scales network performance to hundreds of thousands of remote users easily.

SteelCentral Controller for SteelHead

Manage hundreds of applications centrally, including policy configuration, reporting, and troubleshooting with a simplified, wizard-like approach designed to facilitate the translation of business intent into application-centric service policies. SteelCentral Controller provides real-time visibility into application and WAN performance and application-centric reporting.

SteelCentral Controller for SteelHead Mobile

Manage SteelHead Mobile licenses and control the deployment, management, and reporting of SteelHead Mobile client software. SteelCentral Controller provides real-time visibility into application and WAN performance.

Learn More

The #1 WAN optimization solution for 8 years, Riverbed SteelHead offers the most comprehensive solution for application visibility, optimization, and control to ensure peak performance of applications and the greatest bandwidth savings across the hybrid WAN. Riverbed delivers the full value of the distributed hybrid enterprise to every edge—remote user, branch, cloud, and data center—for exceptional end-user experience.

To learn more about Riverbed SteelHead products, please visit: www.riverbed.com/SteelHead.
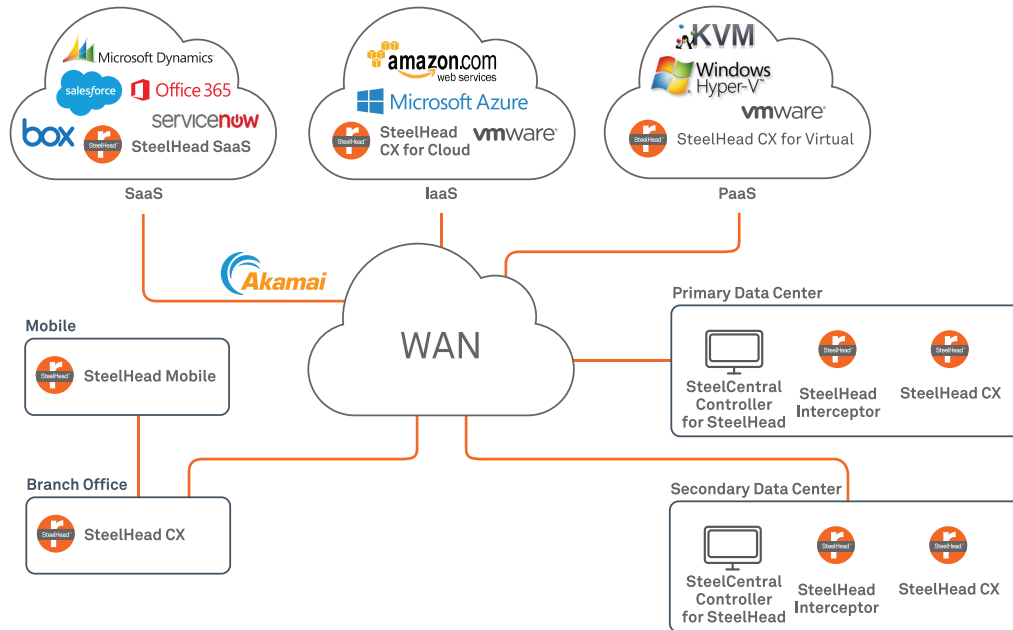
SteelHead solutions deployed within a hybrid enterprise

About Riverbed

Riverbed, at more than $1 billion in annual revenue, is the leader in application performance infrastructure, delivering the most complete platform for the hybrid enterprise to ensure applications perform as expected, data is always available when needed, and performance issues can be proactively detected and resolved before impacting business performance. Riverbed enables hybrid enterprises to transform application performance into a competitive advantage by maximizing employee productivity and leveraging IT to create new forms of operational agility. Riverbed's 27,000+ customers include 97% of the *Fortune* 100 and 98% of the *Forbes* Global 100. Learn more at riverbed.com.

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