

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 optimization, visibility, and control of all applications, including on-premise 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 8 consecutive years



Magic Quadrant for WAN Optimization
Source: Gartner (March 2015) – Bjarne Munch, Neil Rickard

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Optimization. Visibility. 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-premise and cloud-based applications help improve end-user experience and reduce the complexity of managing performance over hybrid networks.

Key Benefits

- **Increase performance over hybrid networks** for on-premise, cloud, and SaaS applications up to 100x while reducing bandwidth
- **Enable faster, more effective troubleshooting** with enduser experience visibility into SteelHead-optimized and non-optimized Web and SaaS applications, such as [Salesforce.com](https://www.salesforce.com)
- **Definitively pinpoint whether it is a network problem or the SaaS provider's problem** with visibility into the breakdown of network versus service provider server delays
- **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 application-aware business logic and policies** to simplify and automate configuration and deployment of path selection across hybrid networks
- **Secure all traffic across hybrid networks** between SteelHead products for private (MPLS) and Internet links with standards-based encryption for added security and regulatory compliance
- **Cut complexity and improve user experience** by consolidating file, email, and application servers, and storage across branches
- **Reduce risk** by enabling rapid, resilient, and data center-to-data center replication and backup—often reducing replication times from hours to minutes

“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.”

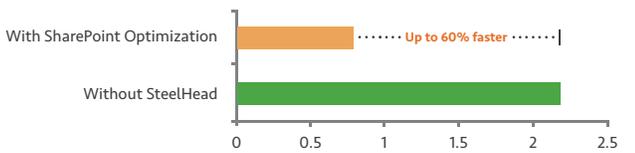
Kurt Anderson
CIO, GeoEngineers

Optimization delivery of applications across hybrid networks

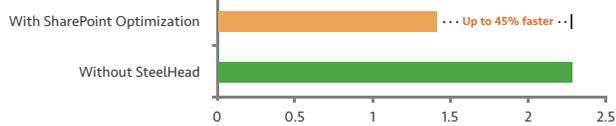
Industry-leading SteelHead optimization capabilities for hybrid networking allow you to deliver performance up to 100x faster for on-premise, cloud, and SaaS application users everywhere.

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

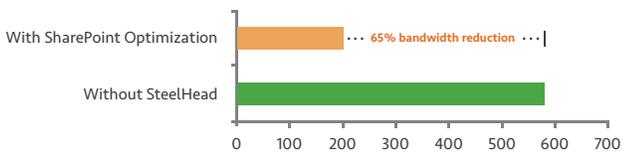
Microsoft SharePoint performance — time to complete (in seconds)



File Open of Word Documents-60% Faster with SteelHead Optimization



Accessing a SharePoint WebDAV Share-45% Faster with SteelHead Optimization



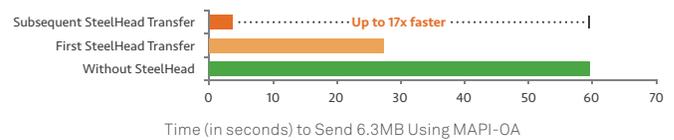
File Open of Word Documents - Data Transferred (KB)-65% Bandwidth Reduction with SteelHead Optimization

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.

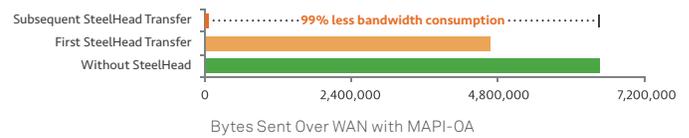
SteelHead solutions now perform application-level latency optimization for Microsoft SharePoint and greatly enhance user experience by optimizing and accelerating application protocols such as Front Page Server Extension (FPSE) and Web Distributed Authoring and Versioning (WebDAV).

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

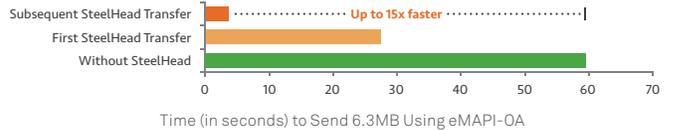
Sending and receiving regular email with an attachment using regular Microsoft Outlook Anywhere (OA) and encrypted OA — time to complete (in seconds)



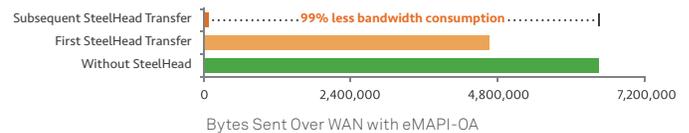
Time (in seconds) to Send 6.3MB Using MAPI-OA



Bytes Sent Over WAN with MAPI-OA



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



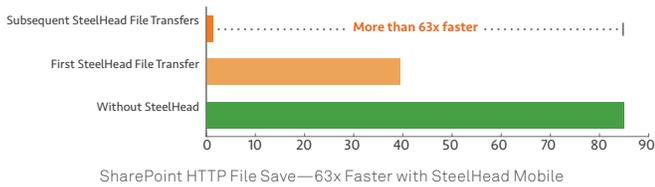
Bytes Sent Over WAN with eMAPI-OA

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.

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)

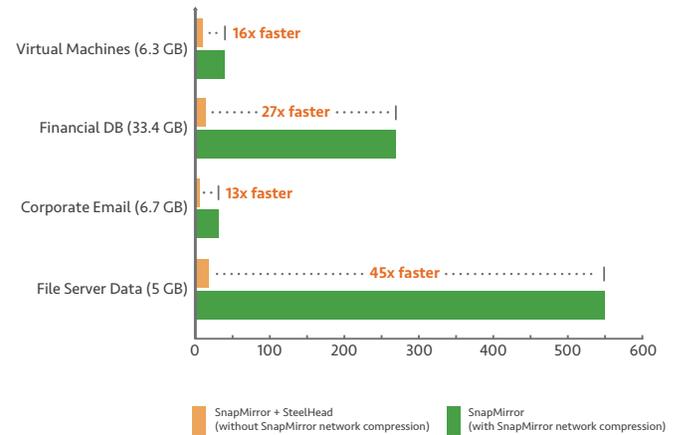


It can be a struggle to support mobile users who need access to corporate data and applications from anywhere. Our mobile optimization solution can help you address the inherent problems of a distributed workforce, such as high latency and inconsistent connectivity resulting from changing locations.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

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)



SnapMirror Data Replication—Accelerated Application Performance with SteelHead Optimization

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.

“Documents that used to take 20 minutes to download from the SharePoint portal now take 10-30 seconds depending on location. With 75 times faster document access, it’s no surprise to see that general (store) managers are adopting the SharePoint portal over faxing documents back and forth. For the company, it means that we’re now all communicating in real-time and delivering the most up-to-date products and services to the customer. On top of this great performance, however, we could also show how SteelHead Mobile would also enable us to cut costs and avoid additional IT expenses. With all these pieces in place, we knew we had the right solution for our business.”

Steve Farley
Director of Information Systems & Operations
Einstein Noah

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](https://www.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.

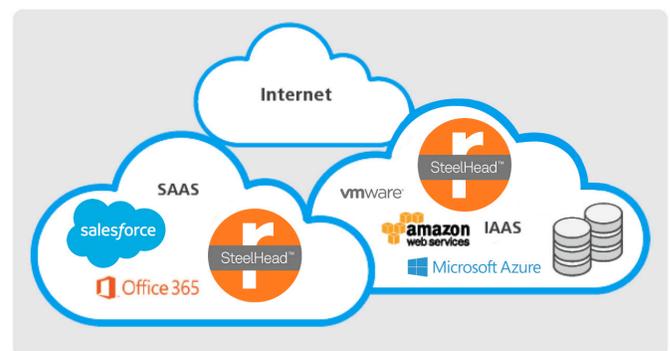
“It was just amazing how much better Office 365 was with Riverbed: 300% performance improvement in some cases, sub-second response times now for anything—you wouldn’t know Office 365 was in Singapore.”

Branko Ceran
CIO, MTC Work Solutions

SteelHead GeoIQ (GeoDNS) 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. With GeoIQ, we optimize mailbox traffic with a SteelHead instance near where the user and the mailbox are located, optimizing the most direct path.

“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
- 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
- Automates configuration and deployment of hybrid networking and path selection with application-aware, business intent-based policies

Path selection: Application-level, policy-based control

IT organizations are deploying and trying to manage hybrid networks that combine the strengths of a highly reliable MPLS network with the benefits of the Internet—ubiquity, price, and speed.

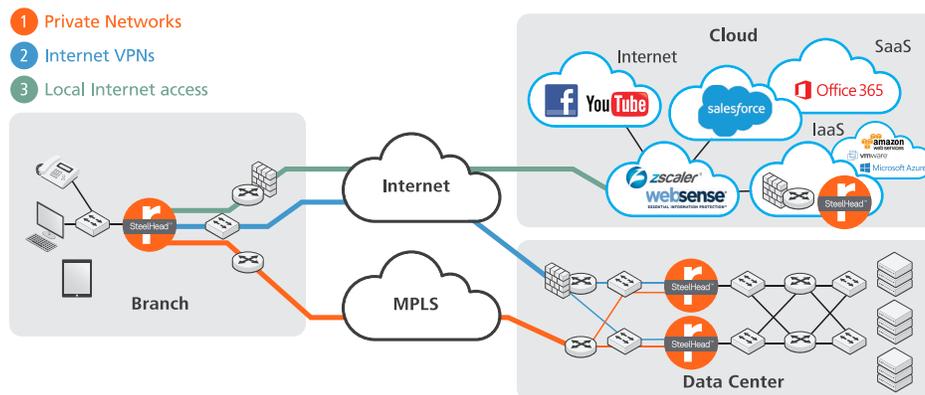
Using a wizard-like process for defining application policies based on business requirements, SteelHead 9.0 enables you to easily leverage and control hybrid networks for accelerated application delivery. SteelHead 9.0 via SteelCentral Controller quickly derives all possible paths based on path availability, and based on customer-defined business policies, enables you to prioritize, secure, and deliver critical applications over the faster networks and less-critical, recreational applications and bulk backups over the Internet. The solution simplifies application and path management, ensures service-level delivery for business-critical apps, and increases end-user productivity.

SteelCentral Controller for SteelHead 9.0 can manage hundreds of applications, including policy configuration, reporting, and troubleshooting.

The solution is prepopulated with known applications, allows the addition of custom applications, and provides Application Groups to easily enable business-intent policy definition.

With SteelCentral Controller for SteelHead, you can:

- Set up your path selection policies based on your business need and intent.
- View policy configurations on dashboards that provide global, site, and application views with detailed performance metrics for applications, networks, path selection, secure transport, QoS, and sites.
- Easily change your business intent-based policy in real-time based on new insights derived from the metrics—before the user can even report a problem application.



Enhance IT control with SteelCentral Controller: its application-centric, business intent-based policies for path selection enable the solution to derive all path possibilities for applications across the hybrid network. SteelHead products integrate with SteelCentral AppResponse to extend end-user visibility with troubleshooting to SteelHead-optimized and non-optimized, enterprise Web and SaaS applications.

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.

- Supports up to 1 million connections through an intelligent, scale-as-you-grow performance architecture
- Delivers packet capture, troubleshooting, and application-level visibility
- Seamlessly integrates with SteelCentral NetProfiler for end-to-end network monitoring and reporting and with SteelCentral AppResponse for end-user experience monitoring for Web and SaaS applications

SteelHead CX for Virtual Deployments

Extend optimization and performance to VMware vSphere (ESXi 5.5), vCloud Air (Certified), and Microsoft Hyper-V Server 2012-based virtual environments.

- Offers the same application performance and data transfer benefits in a virtual form
- Increases capacity on demand
- Integrates seamlessly with NetProfiler for end-to-end network monitoring and reporting and with AppResponse for end-user experience monitoring for Web and SaaS applications

SteelHead CX for Cloud Deployments

Extend subscription-based optimization to IaaS clouds. Authorized servers redirect connections to the appropriate SteelHead CX to accelerate performance.

- Accelerates 90% of major cloud providers with support for AWS, Azure, and VMware ESX-based clouds
- Accelerates migration and access to the cloud
- Provides elastic sizing and easy cloning for a scale-as-you-grow infrastructure
- Integrates seamlessly with NetProfiler for end-to-end network monitoring and reporting and with AppResponse for end-user experience monitoring for Web and SaaS applications.

SteelHead SaaS

Simplify optimization integration into cloud environments to more efficiently manage the delivery of business-critical data and content from a public cloud infrastructure.

- Extends optimization to cloud services/SaaS to manage business-critical data and content delivery and to ensure peak application performance
- Improves the performance of SaaS applications, such as Salesforce.com and Office 365, by up to 33x
- Ensures the fastest path from the user to the application
- Integrates with the globally-distributed Akamai Intelligent Platform, which optimizes the routing of traffic across the public Internet
- Integrates seamlessly with NetProfiler for end-to-end network monitoring and reporting, and with AppResponse for end-user experience monitoring for Web and SaaS applications

SteelHead Interceptor

Load balance and scale your network-wide throughput easily.

- Continues high-availability operations by diverting to fully functional SteelHead instances in the event of either a SteelHead instance or a network failure
- Offers fair peering, load-balancing intelligence that steers traffic to the optimal SteelHead instance
- Delivers the only load-balancing solution capable of assessing SteelHead pressures to most efficiently balance traffic

SteelHead Mobile

Improve mobile and remote user productivity and experience across hybrid networks with optimization designed for Windows and Mac-based laptops.

- Enables remote employees to access files and applications more than 19x faster
- Scales network performance to hundreds of thousands of remote users easily
- Allows you to manage the policies that determine what optimizations take place per user or per groups of users

SteelHead EX

Combine optimization, storage delivery, and virtualization for complete branch consolidation with a purpose-built, branch office converged infrastructure solution.

- Provides the Riverbed Virtual Services Platform (VSP) that consolidates branch services onto the vSphere virtualization platform
- Centralizes branch data to the data center with Riverbed® BlockStream™ Technology for storage delivery
- Acts as a SteelCentral probe, making it easy to provide branch application-level visibility and troubleshooting
- Seamlessly integrates with NetProfiler for end-to-end network monitoring and reporting, and with AppResponse for end-user experience monitoring for Web and SaaS applications
- Integrates seamlessly with SteelCentral NetShark-V for continuous captures of packet and flow data to improve network troubleshooting

SteelHead DX

Address the unique needs of data center-to-data center and application transfer, replication, and recovery with a purpose-built optimization solution.

- Delivers up to 60x improvement in throughput across networks with high latency and packet loss while reducing bandwidth requirements by up to 99%
- Offers 2 Gbps of unrestricted, optimized capacity with no enforced optimized bandwidth limit
- Includes a select set of application-streamlining capabilities for popular disaster recovery applications, such as SnapMirror and SRDF/A, along with enhanced plug-and-play integration

- Provides a new Turbo Data Streamlining option designed for higher data replication performance between data centers—available only for the DX solution
- Integrates seamlessly with NetProfiler for end-to-end network monitoring and reporting and with AppResponse for end-user experience monitoring for Web and SaaS applications

SteelCentral Controller for SteelHead

Manage hundreds of applications, including policy configuration, reporting, and troubleshooting.

- Offers a simplified, wizard-like approach designed to facilitate the translation of business intent into application-centric service policies
- See how policies are working in real-time based on dashboard, site, and application views with detailed performance metrics for applications, networks, path selection, secure transport, QoS, and sites
- Change your business intent-based policy in real-time easily, based on new insights derived from the metrics—before the user can even report a problem application

SteelCentral Controller for SteelHead also provides configuration, backup/restore, and upgrade support for:

- SteelFusion™ Edge
- SteelFusion Core
- SteelCentral Controller for SteelHead Mobile

SteelCentral Controller for SteelHead Mobile

Manage SteelHead Mobile licenses and control the deployment, management, and reporting of SteelHead Mobile client software.

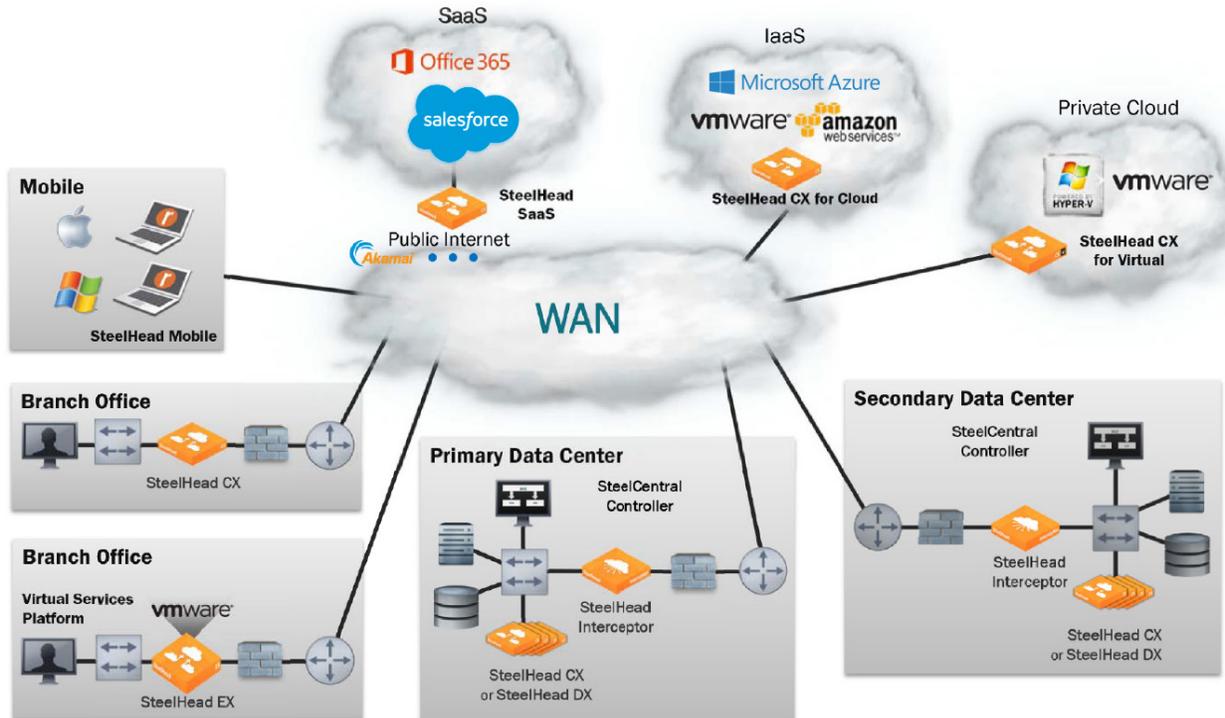
Available in a standalone or a virtual edition for deployment flexibility.

- Provides real-time visibility into application and WAN performance
- Offers a single source for monitoring and license management
- Includes one-touch software upgrades and health alerts

Learn More

Riverbed SteelHead is the industry's #1 optimization, visibility, and control solution for the hybrid enterprise that guarantees optimal service levels for applications among data centers, branch locations, cloud networks, and end-users.

To learn more about Riverbed SteelHead products, please visit: <http://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 26,000+ customers include 97% of the *Fortune* 100 and 98% of the *Forbes* Global 100. Learn more at riverbed.com.

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