



Application Performance Optimization:

Tackling the Challenges of a Remote and Mobile Workforce

Introduction

The typical business today must support a workforce that's far more dispersed, remote, and mobile than ever before. A 2014 IDG study on the consumerization of technology in the enterprise found that 63% of knowledge workers currently work both in the workplace and remotely using either a PC or mobile device. The percentage of employees tethered to a workplace PC for at least a portion of their job was projected to drop from 91% to 50% by 2016.ⁱ

This evolving edge of the enterprise means that business is now conducted anywhere –from headquarters and branch offices to remote oil rigs and shop floors. On any given day, you'll find employees using laptops, smartphones, and tablets to get their work done at coffee shops, hotels, airports, or their homes.

The trend is gaining steam as more millennials enter the workforce. A 2016 Deloitte survey found that 75% of millennials said they prefer to work more frequently from

home or other locations where they feel more productive – but only 43% currently do so.ⁱⁱ

Supporting this increasingly remote workforce puts significant pressure on IT teams to deliver seamless connectivity and superior application performance to any location. Without high-performing applications, collaboration and productivity will degrade – and the business as a whole will suffer.

Improving application performance to the edge of the enterprise, on the other hand, boosts productivity and improves both employee and customer experiences – along with other tangible business benefits.

For example, a U.S.-based consulting firm relies on its wide-area network (WAN) to deliver business-critical applications (such as CAD, GIS, and financial software) from its data center to several branch offices, and also to enable interoffice collaboration. Several offices are in small towns, with very

few employees, making it cost-prohibitive to provide sufficient bandwidth for handling large files. Additionally, the firm's workforce is quite mobile, with planners at customer sites, executives on the road, and engineers who work from home. Downloading a 110MB project folder from a home connection could take as long as an hour.

A WAN optimization solution helped to improve application speeds and collaboration, making it possible for staff to work productively from home and on the road. Mobile users see 75% less data over their Internet connections, and those large, project folder downloads now take only 90 seconds – a 40-fold improvement. With the increased productivity, the firm is better able to deliver projects on time, while seeing improved customer satisfaction and repeat business.

Growing Challenges

The challenges of supporting an increasingly remote workforce become all the more daunting, however, as organizations move to hybrid environments that mix cloud and on-premises applications and MPLS and public Internet connectivity. In addition, managing a workforce's technology needs without the benefit of local personnel at edge locations, while also lacking visibility into which applications are being used and how end users access them, quickly becomes time-consuming, costly, and frustrating to both administrators and users.

Users simply want a positive experience with their applications – instant access, fast performance, and the ability to seamlessly collaborate with colleagues everywhere. Without the same access and performance from remote locations that users get when they're in the home office, productivity can suffer. IT, in turn, is responsible for ensuring a flawless experience at the lowest possible cost.

For both parties, application performance is critical.

Three Keys to Managing a Mobile Workforce

Enterprises can, of course, overcome these issues and deliver an optimal remote/mobile user experience. To do so, IT teams need to develop a better understanding of the applications and data across the enterprise, securely optimize the performance of those applications, and

efficiently control delivery of those applications across a hybrid enterprise WAN.

1. Increasing application visibility

The twin trends of BYOD and shadow IT have made life much more complicated for IT administrators trying to get a clear picture of the applications running on the enterprise network. In addition, as encryption becomes a core feature of many applications, visibility into the data that users are sharing also becomes difficult. IT teams need a much greater level of detail than just Internet traffic logs – all the way out to the edge.

Without a clear baseline of applications and data, IT is severely restricted in its ability to manage, optimize, and secure these critical organizational assets. Nearly half of the respondents in IDG's consumerization study said they had inadequate visibility into end-user activities. Application performance and security cannot be compromised for businesses competing in the digital economy.

Organizations are taking a variety of steps to sharpen their view of enterprise applications. More than 8 in 10 respondents to the IDG study said the increased use of personal devices at work had forced at least one change in their organization, ranging from creating new policies for accessing data to increasing support/helpdesk budgets. Seventy-seven percent said they were using some form of mobile device management.

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However, ensuring application performance begins with identifying applications. IT teams need the ability to address encrypted traffic as though it is any other traffic. They need the ability to clearly distinguish between SSL-encrypted applications or between posts and games within Facebook. With deeper application understanding, IT can better ensure that critical applications like Web, voice, and video are protected, while recreational applications are contained. Today's environment requires the ability to look deep into application flows and utilize a variety of techniques to provide accurate application visibility into network traffic in real time. With a more granular level of visibility, IT can fine-tune application performance to ensure and improve the end-user experience.

2. Optimizing application performance

Bandwidth needs are increasing dramatically, thanks to the growth of streaming video and image-sharing applications along with bandwidth-hungry business applications such as SharePoint. These trends are adding both performance and cost constraints to IT infrastructures. Bandwidth may be cheap, but it's certainly not free. Connectivity also varies widely across the globe; limited bandwidth or poor wireless service from remote locations can degrade performance even for cloud-based applications.

At the same time, user expectations for speedy access to applications and data and rapid load times for video and images are higher than ever. Those expectations put even more pressure on IT teams to optimize application performance.

Simply throwing more bandwidth at the challenge is not the answer, because the root causes of poor performance are

rarely limited to capacity issues. Factors such as latency on the network can affect performance as well, especially for users in remote locations who must access applications over greater distances, regardless of whether the data resides in the corporate data center or in the cloud.

In order to fully optimize network performance, companies need to address both bandwidth and latency bottlenecks. Network bandwidth can be optimized through intelligent streamlining of the data and prioritization of critical and real-time traffic. On the other hand, network latency is caused by protocol and application inefficiency that has to be streamlined at those layers. Optimization should address how specific applications function across the WAN, streamlining transport and reducing application transactions. Comprehensive optimization can help to maximize performance, giving remote workers the ability to collaborate in real time, download files quickly and securely, and send large file attachments to any destination.

Another organization was beginning to see cracks in its WAN infrastructure after moving from terminal services applications to browser-based applications hosted in a private cloud. A WAN optimization solution helped the company reduce data transfers by more than 90%, improving application speeds and stabilizing the network. The solution delivered a return on investment in less than 12 months, along with quality-of-service improvements and fewer complaints about dropped connections.

3. Controlling application distribution, access, and management

Business is being conducted everywhere, but IT's presence at the edge of the enterprise is limited. That raises troubling scenarios about the ability to manage and secure all applications in a consistent and compliant manner. More than half of the organizations in IDG's consumerization study have implemented formal policies to regulate how corporate data is accessed and shared on mobile devices and other consumer technologies.

IT teams looking to optimize application performance across the enterprise face a difficult balancing act: They need to deliver the access and flexibility that users need and expect while managing and securing the technology across an increasingly distributed environment. For an organization managing a large number of applications to remote workers, the ability to easily and securely manage application delivery and performance remotely is vital to its ability to scale.



How Riverbed Optimizes Application Performance for Mobile Workers

Riverbed SteelHead Solutions provide the comprehensive visibility, optimization, and control organizations need to leverage global resources and allow their workforces to access applications and data from anywhere.

SteelHead Mobile extends Riverbed's industry-leading acceleration to remote and on-the-go workers across the globe. With optimization for applications hosted in a branch, data center, or the cloud, SteelHead Mobile enables true location independence across a distributed, hybrid enterprise, for both the applications and the end users who are accessing them.

With SteelHead Mobile, you can enjoy the productivity and collaboration benefits of acceleration for a wide variety of critical enterprise applications including email, file sharing, collaborative applications, and Web apps. SteelHead Mobile can reduce bandwidth consumption by up to 99% and optimize video delivery even in the most challenging of conditions.

In addition, SteelHead Mobile's zero-touch client configuration and centralized policy-based architecture lends itself to ease of orchestration, automation, and management at scale. SteelHead Mobile is also uniquely capable of providing the same acceleration benefits for any SSL- or HTTPS-based application without compromising security policies.

Riverbed delivers the most comprehensive solution to ensure application delivery and exceptional end-user experience, while minimizing resource requirements and improving efficiency and agility. As your enterprise grows or transitions to an increasingly mobile workforce, be sure to consider adding SteelHead Mobile. It's cost-effective, easy to implement and maintain, and vastly improves the remote and mobile user experience.

For more information on how Riverbed can optimize mobile application performance, visit <http://www.riverbed.com/products/steelhead/steelhead-mobile.html>.

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Regardless of where applications are hosted, or from where users access them, IT must be able to direct and prioritize traffic across the hybrid enterprise. Proper controls are essential to a successful mobility strategy. IT teams need to ensure that any mobility solution accommodates the proper security provisions, such as encrypted protocol support, SSL, and broad VPN compatibility.

A Better Path to High Performance

Businesses today are becoming ever more reliant on distributed workforces as they expand their global operations. They need to support an increasingly mobile workforce that wants the flexibility to do their work from any location, with any device. These users expect continuous availability and high performance of the applications they're using to collaborate internally, serve customers externally, and conduct other day-to-day business.

Collaboration and productivity in the modern enterprise require seamless access to core business applications and data from any location. As more organizations deploy complex, hybrid environments, optimization solutions will help IT teams deliver superior application performance while reducing the cost of doing business at the edge.

¹Consumerization of IT in the Enterprise study, 2014, IDG Enterprise
²The 2016 Deloitte Millennial Survey, Deloitte

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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