



ACCELERATING THE DELIVERY of Microsoft Office 365

The world's largest organizations are adopting cloud-based infrastructure and services at a dizzying pace, driven by cloud's attractive pay-as-you-grow pricing and its flexibility and agility, such as the ability to add capacity as needed.

Software as a service (SaaS) offerings such as Salesforce.com and Microsoft Office 365 are among the more popular cloud-based services. In the case of Office 365, for many companies, its cloud-based mail, collaboration and communication services are the dominant workload, used by virtually all employees.

These end users are accustomed to the high performance of locally provided services. When moving services to the cloud, data centers are no longer local, so the end user experience can suffer. A poor or congested Internet connection between the user and the cloud service will mean sluggish application delivery that puts a damper on user productivity and ultimately threatens application usage.

Riverbed Technology has been addressing these performance issues for some time on private and cloud enterprise networks with Steelhead wide-area network (WAN) optimization. Since 2012, Riverbed has applied its technology to Office 365 and Salesforce with Riverbed® Steelhead® Cloud Accelerator. Steelhead Cloud Accelerator combines WAN and Internet optimization to ensure bandwidth reductions and a superior user experience.

Clouds on the rise

Clearly, the demand for cloud services is growing rapidly. Gartner predicts spending on public cloud services will grow 18% in 2013 to \$131 billion globally. By 2015, it predicts the cloud services market will reach \$180 billion.¹

While economics of cloud services are ideal for many small and medium businesses, large enterprises with many remote offices and a global reach are also good candidates for cloud offerings. Many enterprise organizations with tens of thousands of users are moving to cloud services attracted by the reduced burden on IT with less day-to-day maintenance, lower infrastructure costs, predictable costs, and world-class service providers.

Businesses that deploy Steelhead solutions locally can see their bandwidth usage reduced by up to 90% for optimized workloads.

Yet cloud-based, or SaaS, offerings can present challenges. With cloud-based applications and services, the public Internet acts as an extension of the corporate infrastructure. Unfortunately, customers have little control over their Internet connections beyond the kind and size of the Internet connection they choose.

Optimizing WANs

End-user application performance problems across WANs are solved with Riverbed technology such as:

- **Data Streamlining**, which works across all TCP applications to reduce bandwidth consumption by 60 to 95 percent. Data streamlining ensures the same data is never sent more than once over the WAN. It works with Windows file sharing, Microsoft Office, email (including Microsoft Exchange), SSL-encrypted applications, CAD, databases and all other applications that use TCP.
- **Transport Streamlining** reduces the number of TCP packets required to transfer data by 65 to 98 percent. Transport streamlining overcomes TCP limitations by adapting transmission characteristics such as window scale, loss handling, congestion notification and more. The technology also allows acceleration for SSL-encrypted applications.
- **Application Streamlining** provides additional order-of-magnitude performance improvements by reducing application protocol chattiness up to 98 percent and minimizing overhead. By reducing application demands on the network, such as application protocol round trips and required network connections, the technology can provide massive throughput increases to applications including Windows file sharing (CIFS), Exchange (MAPI), and Web (HTTP and HTTPS)

Businesses that deploy Steelhead solutions locally can see their bandwidth usage reduced by up to 90% for optimized workloads. This reduction can eliminate the need to upgrade network connections in order to meet performance goals, thus saving money while improving application performance.

With Steelhead Cloud Accelerator, Riverbed extends the capabilities and the benefits of its WAN optimization technologies to cloud services and SaaS by providing acceleration over WAN and Internet connections. Steelhead Cloud Accelerator leverages an Internet optimization

platform, the Akamai Intelligent Platform, for optimizing application delivery across the open Internet.

With Steelhead Cloud Accelerator, the customer consumes SaaS application acceleration as a service, on a per-user subscription basis, in the same way the customer consumes SaaS applications such as Office 365.

Optimizing the cloud

The Steelhead Cloud Accelerator optimizes traffic across the private WAN and the public Internet with Riverbed® Optimization System (RiOS®) technology to accelerate data and application protocols. On second and subsequent transfers, the Steelhead Cloud Accelerator delivers a performance improvement of up to 30 times for cloud services/SaaS applications such as Microsoft Office 365 or Salesforce.com, regardless of where the end user is located.

Steelhead Cloud Accelerator is a software license add-on to new or existing Steelhead appliances. There is no client software to deploy, no change needed in the way Steelhead appliances are deployed, and no required changes to your service provider's infrastructure. RiOS technology is instantly enabled whenever a Steelhead Cloud Accelerator license is activated. A specialized Cloud Steelhead is automatically deployed at the Akamai edge server closest to the service provider data center. The solution enables the seamless optimization of application traffic, including encrypted communications, across the private WAN and the Internet, all the way to the front door of a service provider. This approach solves another cloud challenge, since the customer often cannot locate optimization appliances within the service provider's data center.

Accelerating Microsoft Office 365

Today, about one in four enterprises use Office 365. Available in 125 markets and 32 languages, Office 365 provides mail and collaboration services using Exchange and SharePoint Online. Office 365 also includes document libraries that are highly optimized by Steelhead Cloud Accelerator as well as online versions of Word, Excel, PowerPoint and Outlook.

As a general rule, businesses place data where it makes sense, based on IT needs and cost structure. Riverbed provides products that optimize that data no matter where it lives in order to suit the changing landscape of the customer environment.

FIGURE 1: Deployment Scenario for Office 365 for multi-tenant cloud services with Steelhead Cloud Accelerator and Steelhead appliances

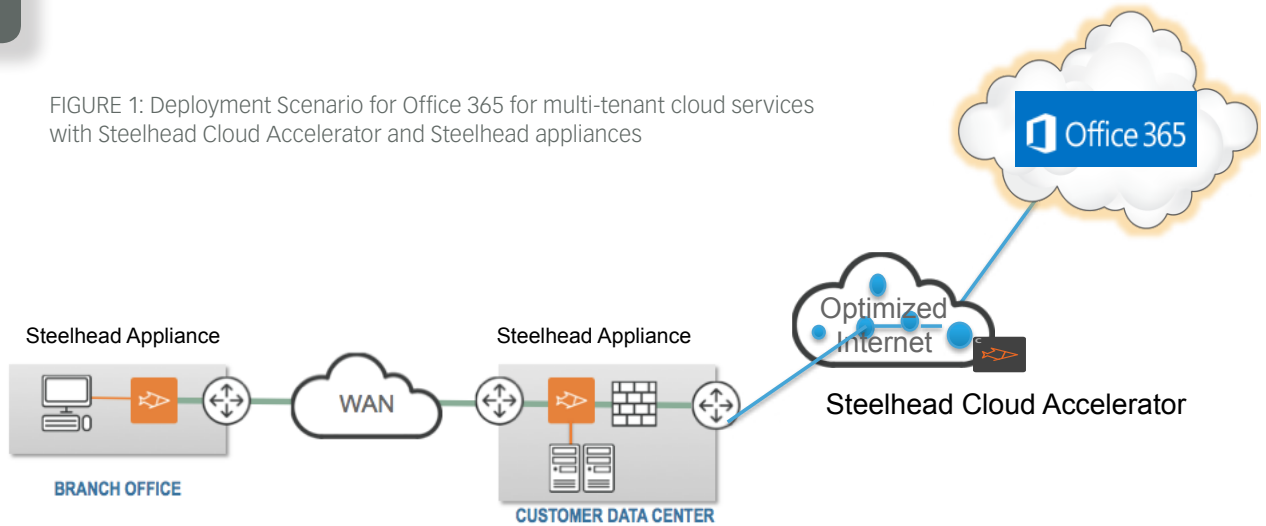


Figure 1 illustrates how Riverbed's Steelhead Cloud Accelerator optimizes Office 365 over the public Internet. This scenario is the most common use for those who purchase the Office 365 Enterprise plans offered from Microsoft Partners or Office365.com.

Riverbed optimization tests demonstrate that, on second and subsequent downloads, a 20.8MB file downloads up to 33 times faster from Office 365 SharePoint Online with the Steelhead Cloud Accelerator solution than without. The download consumes up to 97% less bandwidth: 0.54M bps vs. 23.38M bps without acceleration. Optimization also occurs for file uploads as well as downloads.

Steelhead WAN optimization technology works by recognizing bit patterns from files that have been renamed or modified. By accelerating uploads and downloads of renamed and modified files, significantly more optimized events occur than are otherwise possible. For example, when a file is transferred as an Outlook attachment and a user downloads the same file from SharePoint, the SharePoint download is highly optimized because the file was optimized previously as an attachment. Optimization also occurs for content transmitted using different protocols, all of which means optimization occurs far more frequently than when using, for example, a file caching system.

What's more, Steelhead appliances optimize more than file transfers. The solution also accelerates routing, browsing, email and attachments. When browsing Office 365 web pages, including Outlook Web App, Office Web Apps, and SharePoint Online web sites, most users experience bandwidth reductions from 10 to 97 percent. With Outlook, Steelhead Cloud Accelerator typically conserves 20 to 35 percent or more of the non-optimized bandwidth. Such optimizations significantly improve the overall experience, satisfaction, and productivity level for Office 365 users.

A cloud services requirement

The first question many users ask when considering cloud-based applications is, "How much additional bandwidth do I need?" The answer often is, "More than you have now."

Before upgrading those Internet connections, explore the significant bandwidth reduction and performance improvement provided by Riverbed for Microsoft Office 365 multi-tenant cloud services. Steelhead Cloud Accelerator helps you wring more out of your existing bandwidth without network upgrades and delivers a rapid return on existing infrastructure investments. It provides the fastest path from the end user to the cloud services and applications no matter where data resides. ■

To learn more about Riverbed Steelhead Cloud Accelerator, visit: www.riverbed.com/office365