

## WHITE PAPER

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# Improving the Business Value of WAN Optimization

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Sponsored by: Riverbed Technology

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## EXECUTIVE SUMMARY

In 2007, IDC conducted 12 interviews with Riverbed Steelhead customers in order to assess their experiences after deploying the WAN optimization solution. Given that Riverbed Technology has added features and functionality to Steelhead over the past two years, IDC worked with Riverbed to update and add to this research by conducting eight additional in-depth interviews with Steelhead customers. In this study, as in the 2007 study, IDC found that customers were able to reduce IT costs, improve IT staff efficiency, increase availability for users, and trim time to market with new revenue-generating opportunities.

Highlights from the updated IDC research are as follows:

- ☒ The aggregate analysis yields a three-year ROI of 457% and a payback period of 6.9 months.
- ☒ On average, customers avoided \$979,973 in bandwidth costs annually.
- ☒ Customers have saved \$782,740 on average annually by avoiding the purchase of new servers and tape backup equipment.
- ☒ Restore time has been improved by 83%, on average, since the deployment.
- ☒ IT operations benefits in server, network, and application management are equal to an average savings of 10.9 full-time equivalents (FTEs).
- ☒ The number of weekly help desk calls has been reduced by 17%.
- ☒ On average, each user has 15.3 hours of more productive time per year.
- ☒ Time to market of new revenue-generating opportunities has been improved by 6.5 days.

## METHODOLOGY

IDC's ROI methodology measures the efficiency of solutions and uses the findings to calculate ROI for the deployed management software. The method includes four steps:

1. Evaluate the internal and external costs of administering the systems, networks, applications, and hardware before deploying the solution.
2. Ascertain the investment in the purchase, implementation, and deployment of the solution. It is important to estimate not only the initial purchase cost but also the required implementation, integration, and training costs. To measure the total deployment investment required, IDC includes questions that cover the cost of purchase, setup, and integration as well as the ongoing software fees and IT maintenance time.
3. Measure the cost savings and gains in productivity, availability, and efficiency achieved using the solution. Portions of the interviews are dedicated to the discovery of cost savings, including both "hard" IT costs, such as savings in server and backup tape purchases, and "soft" costs, such as IT staff productivity, IT management efficiency, and end-user productivity.
  - ❑ Availability and user productivity. To measure the effects of system availability, IDC concentrates on determining the effect on user productivity caused by downtime by asking questions about systems, network, and application unavailability patterns before and after implementation. The hourly salary rates of the user base are applied to the reduction in hours of downtime.
  - ❑ Cost reduction. IDC asks about what costs have been avoided or reduced for servers, backup tapes, bandwidth, licensing fees, and avoided travel. Savings are reported in terms of dollars per unit saved or annual reduction in spend.
  - ❑ IT management efficiency. IT management efficiency pertains to efficiencies achieved in server administration, network management, and application deployment/management. The data shows how much IT time has been saved on these tasks and how many additional staff members would be required to support the environment with and without the tools.
  - ❑ IT staff productivity. To measure changes in IT productivity, IDC specifically asks about the reduction in time to restore databases and the reduction in backup window time. In addition, help desk administration time (reduction in calls per month and shorter duration per call) was included in this measure of productivity.
4. Calculate the payback period and ROI for the deployed solution. Based on the aggregated interview data, IDC calculates the payback period and rate of return based on the overall cost savings resulting from the investments in Riverbed Steelhead. To normalize the data, we present the results in terms of per 100 users.

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## **ROI and Payback Period Calculation Assumptions**

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

- ☒ Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings.
- ☒ Downtime values are a product of the reduction in downtime hours multiplied by the number of users affected and their hourly rate.
- ☒ Because not every hour of downtime equates to a lost hour of productivity, IDC specifically asks about the percentage impact of an hour of downtime and attributes a fraction of the hourly result to the dollar savings.
- ☒ All IT solutions require a deployment period. The full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis based on the average deployment term.
- ☒ The net present value of the three-year savings is calculated by subtracting the discounted three-year investment from the discounted three-year benefit. IDC uses a 12% discount rate to account for potential outlays made at the time of deployment and interest on that expense.

## **SITUATION OVERVIEW**

The network has become the central foundation of many IT operations. It is the IT infrastructure investment that not only supports internal employee communications but also is the very linkage that drives ongoing revenue and growth.

Key organizational goals such as creation, maintenance, and enhancement of customer support excellence have at their very foundation a resilient network. Organizations are prioritizing investments in technologies that enhance and support customer interactions. These technologies include the connected branch office, integrated customer engagement tools, unified communications, and business intelligence and analytics. Additionally, the demand to continue efforts around business process optimization such as consolidation and virtualization is further strengthening reliance on the network.

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## **New Applications to Drive Global Business**

Businesses today recognize that in order to grow top-line revenue they need to expand their customer base around the globe and at the same time leverage the wealth of new applications available to efficiently and effectively drive a global business. The new applications foster and facilitate this global business by guaranteeing that all geographies are working from a consistent and coordinated data set. These new applications have at their core an ability to foster seamless communications. New online applications representing critical business processes

are now enabled for the Web, while many existing applications need to be extended consistently on a global basis. Such applications include:

- ☒ Financial and business applications, such as enterprise resource planning and customer relationship management
- ☒ Web applications such as voice over IP (VoIP) and videoconferencing
- ☒ Content management for product life-cycle management and rich content
- ☒ Cloud strategies and offerings to quickly introduce new functionality to the organization

IT wants to realize the benefits of these new applications without the downside of slow, unreliable, and unpredictable application response times, which could slow user adoption and reduce user satisfaction and productivity.

Additionally, the exchange of information between partners and suppliers must be available. For example, it is critical that a partner know the timelines for delivery of products or services. With the tidal wave of new types of content on the enterprise network, such as email, file and print data, backup data, and Web servers, the need for improved WAN capabilities and the ability to better manage the bandwidth available is clear.

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## **Branch Office IT Centralization**

Inherent in the nature of the remote branch is the desire of the business to be closest to its end customer, whether it is a retail operation that needs multiple points of sale or a hospital that wants to deliver timely patient care. The remote branch is often the location within an organization that is closest to the end customer. As a result, the IT organization must be able to deliver the services that meet the fluid needs of the business everywhere. As organizations recognize how improvements in customer service by increasing touch points result in revenue growth, there is a corresponding growth in the number of remote and branch locations. In order to effectively and efficiently leverage investments in branch locations, IT has the following goals:

- ☒ Reduce and contain bandwidth costs
- ☒ Reduce and contain IT and support costs
- ☒ Facilitate and support revenue-generating activities
- ☒ Secure corporate data either for regulatory purposes or simply to stay out of the headlines
- ☒ More reliable and efficient data protection
- ☒ Single consistent set of business analytics

In order to achieve these goals, IT is embarking on a period of IT centralization. Centralization is pervasive across the following elements of the IT infrastructure:

- ☒ **Servers.** IT is removing or consolidating servers that exist in remote branch and departmental locations.
- ☒ **Storage.** In order to have a more coordinated and cohesive data protection plan, IT is creating centralized pools of network storage in the datacenter.
- ☒ **Desktops.** The proliferation of applications and devices is creating a management headache for IT organizations. In order to simplify the installation and ongoing administration costs associated with desktop applications, IT is starting adoption of centralizing this functionality into the datacenter and providing virtualized desktop and application images to the remote locations.

Additionally, if business complexities limit the ability of IT to centralize, there is an absolute demand for centralized, datacenter-based management of distributed IT infrastructure in the remote branch.

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## **Enhancing Data Protection in the Extended Enterprise**

IT asset consolidation is a high-priority strategy for most enterprises in these tough economic times. For many organizations, the deployment of servers and storage systems at numerous remote sites is both an administrative and a security nightmare. Key challenges posed by these distributed systems include:

- ☒ Deploying, maintaining, and managing backup software and systems (e.g., tape drives and tape media) in widely dispersed locations
- ☒ Implementing media management policies for both onsite and offsite storage of backup tapes that often require the use of third-party transportation and vaulting companies, thereby increasing the risk of lost or misused data
- ☒ Monitoring and improving success/failure rates on remote backup processes and undertaking complex data/application recovery procedures, where local IT expertise is limited or nonexistent
- ☒ Supporting business continuity plans with datacenter replication, where bandwidth may be limited or cost prohibitive
- ☒ Ensuring protection and retention of data for eDiscovery proceedings

Extended enterprises have two options: They can centralize applications and storage back to a main datacenter, or they can deploy advanced data replication services that reduce the cost and complexity of backing up remote servers. Both options can deliver major improvements in data protection and disaster recovery.

In conversations with companies around the world, IDC hears from many IT executives who acknowledge that consolidation goals conflict with existing data protection solutions and processes. They continue to expand globally and must

respond to changing expectations about application availability and information security. They need solutions that better help them meet these challenges. At the most basic level, such a solution must:

- ☒ Leverage existing systems and facilities (e.g., WAN links) without requiring major redesigns or upgrades to installed systems
- ☒ Reduce the time and resources required for local and remote backup and replication while also eliminating backup windows and reducing failed backups/recoveries
- ☒ Support the installed server environments (e.g., Windows, VMware, Unix, and Linux) and application types (e.g., files, email, and databases) that companies typically deploy on departmental systems or in remote offices
- ☒ Support replication from branch office to datacenter and between datacenters for disaster recovery

Beyond these basic functions, to meet the evolving regulatory, eDiscovery, and governance needs of companies, a solution must:

- ☒ Scale to meet expanding numbers of systems, applications, and sites while actually reducing backup times and shortening recovery times across all locations
- ☒ Ensure the integrity and security of the backed-up data while in transit and at any central data storage facility
- ☒ Provide a centralized system for setting policies for backups, transfers, and recoveries as well as systems to monitor compliance with these policies
- ☒ Improve recovery point and recovery time objectives
- ☒ Improve robustness and reliability of data protection
- ☒ Reduce costs for hardware, network, and administration

Today, leading organizations recognize that the most efficient approach to the protection of branch office data and implementation of disaster recovery for midsize enterprises is WAN-based backup and data replication. The single most challenging aspect of centralized backups/replications for extended enterprises is the bandwidth limitations (cost and throughput) of each individual remote office.

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## **Improving Productivity for the Mobile Worker**

The number of remote workers, operating out of either a remote branch location or a branch office of one (e.g., home office) location, will continue to increase. This growth is being fueled by the following trends:

- ☒ **Social patterns.** As a result of changing social patterns, end users who are used to ubiquitous connectivity of consumer applications demand the flexibility to access corporate applications anywhere, anytime, and always.

- ☒ **Global competition.** In order to compete in a global economy, organizations want the ability to leverage skill sets independent of the primary location of their headquarters. As a result, organizations are hiring employees and contractors around the globe.
- ☒ **Environmental.** By encouraging employees to work from home, an organization can reduce its carbon footprint on the time and energy savings associated with commuting to an office location. Additionally, conditions beyond the control of a single organization, such as hurricanes, pandemics, or earthquakes, can be minimized with a work-at-home policy.
- ☒ **Economic.** Corporations save money by limiting the amount of office space associated with an individual employee. Many employees find it more economical to limit time and expenses commuting to an office location.

The benefits are clear, but as the number of remote workers continues to grow, IT organizations are burdened with supporting those workers and face the following challenges:

- ☒ **Equal playing field.** Remote and mobile employees must have access to the same tools and data that are available to employees located at headquarters locations.
- ☒ **Security.** Mobile workers or telecommuters create a security challenge for organizations. As these workers traverse hotels, airports, and various WiFi locations, they have the ability to corrupt even the most secure network architectures. A global coordinated strategy is the only way to address security challenges.
- ☒ **Compliance.** Ensuring that legal and regulatory compliance requirements are met remains a major concern. When sensitive corporate data can literally walk out the door every night on an individual's laptop, IT needs to have a process that prevents this from occurring.
- ☒ **Application performance.** The main challenge with application performance is applications that were originally designed to work over a LAN must now work over the WAN. IT needs to enhance user productivity and ensure fast, predictable response of enterprise applications.
- ☒ **Network complexity.** Handling the multitude of combinations of connection types and bandwidth across global consistencies of end users is challenging operationally.

Given that the demand for worker mobility is growing and the challenges facing organizations are real, IT is investing in WAN optimization to make sure that the communication flow between employees, partners, suppliers, and customers is seamless.

## RIVERBED WAN OPTIMIZATION SOLUTIONS

Riverbed offers integrated WAN optimization solutions and a full portfolio of platforms and services that work together to meet IT requirements. Riverbed's WAN optimization offerings include the following products:

- ☒ **Steelhead appliances.** Steelhead appliances range in size to satisfy IT environments from small offices to large multisite datacenters. Riverbed also enables enterprises to cluster large numbers of Steelhead appliances in datacenters through its Interceptor appliances, which scale up to 12Gbps, with support for up to 1 million simultaneous TCP/IP connections.
- ☒ **RiOS.** The Riverbed Optimization System (RiOS) is the software platform that powers the Steelhead appliances.
- ☒ **RSP.** The Riverbed Services Platform (RSP) lets customers run additional services and applications with VMware on a protected partition on Steelhead appliances. This enables branch server consolidation and virtualization and simplified administration.
- ☒ **Steelhead Mobile.** Riverbed has enabled RiOS to scale to a single user. Steelhead Mobile enables individual users to receive the same LAN-like application performance that they have come to expect from Steelhead appliances by utilizing the same software as the appliances.
- ☒ **Cascade.** Providing businesses with an application-level view of their networks and servers through the use of network behavioral analysis, Cascade can trend typical behavior and proactively alert IT to issues in the environment, assess the best places for WAN optimization investment, and assist in consolidation efforts.

In developing its solutions, Riverbed focuses on the following major areas:

- ☒ Accelerate applications across the WAN
- ☒ Reduce WAN bandwidth utilization
- ☒ Enable IT consolidation, virtualization, and cloud services
- ☒ Optimize disaster recovery
- ☒ Accelerate mobile workers
- ☒ Enhance visibility and manage application performance

This paper focuses on the business benefits of the Steelhead product family.

# DETERMINING THE BUSINESS BENEFITS OF WAN OPTIMIZATION WITH STEELHEAD: IDC RESEARCH

## Demographics

In addition to the 12 interviews with Riverbed Steelhead customers conducted in 2007, IDC interviewed eight companies in North America and Europe and captured the change in their experiences since deploying Riverbed Steelhead. Between the two sets of interviews, the companies ranged from 600 to 360,000 employees and averaged 78 employees per IT support staff. The demographics are shown in Table 1.

**TABLE 1**

### Demographics

| Category                    | Average               |
|-----------------------------|-----------------------|
| Average number of employees | 4,000                 |
| Average number of IT staff  | 75                    |
| Employees per IT staff      | 78                    |
| Geography                   | North America, Europe |

Source: IDC, November 2009

## Deployment

Customers deployed Riverbed Steelhead for a variety of reasons, including server consolidation, reduction of operating expenses, and data/equipment centralization.

Riverbed Steelhead was deployed in 6.9 months on average. The length of deployment was largely driven by the number of sites to which Steelhead was deployed. If the customer had fewer locations, it typically led to a shorter term for deployment — in some cases, extremely short deployments. As one customer said, "To deploy, it took literally a day. I plugged in the first two, showed my network administrator, made one call over to Riverbed, and it was up and running."

One customer noted that in the past, the network systems were disparate and decentralized. As the IT manager told IDC, "The only way for the company to centralize all of the data and keep people from screaming at me was to implement Riverbed." Further, this customer wanted to centralize because the company had older equipment throughout the IT organization. Because leaving the hardware decentralized would have been more expensive due to the cost of licensing, consolidation became a driving factor in the purchase decision.

As one manager said, "We used to be a very disjointed IT group. Each business unit had its own IT group. But after we went through the reorganization, we started consolidating systems down to a couple of datacenters. There was no way to keep the same performance without using some kind of WAN acceleration."

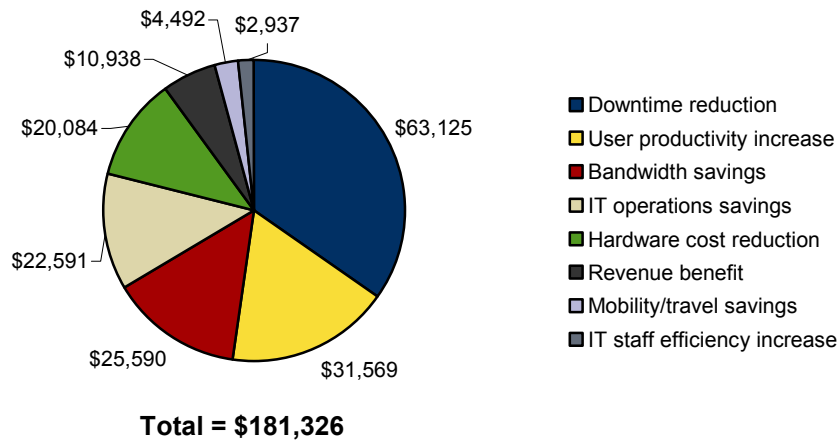
## Benefits of Riverbed Steelhead

IDC found that Riverbed Steelhead customers experienced benefits in four primary areas: cost reduction, IT staff efficiency, user productivity increase/downtime reduction, and improvement in time to market/revenue.

The proportion and value of these benefits are shown in Figure 1 in terms of per 100 users.

**FIGURE 1**

Three-Year Benefits of Riverbed Steelhead per 100 Users



Source: IDC, November 2009

## Hard Cost Reduction

Riverbed Steelhead customers reported cost reductions in multiple areas, including bandwidth, server acquisition and licensing, remote backup and recovery, and mobility support.

### **Bandwidth**

Riverbed Steelhead customers have been able to avoid bandwidth capacity issues since the deployment. One customer estimates, "We have saved 85% and we plan to upgrade all of our connections to include Riverbed Steelhead appliances. We are avoiding millions of dollars in infrastructure costs. The savings are sky high."

In the past, many customers found that the only solution to their growing demand was to continually add more bandwidth in the hope of keeping pace with the company's needs. As one customer said, "When we first put it in place, our bandwidth usage actually went down. We have been able to renegotiate our contracts, and we are going to save over \$2 million in the next two years." On average, customers in this study are saving \$979,973 per year in bandwidth costs since deploying Riverbed Steelhead.

### ***Servers***

Customers have been able to run virtual servers directly on Riverbed Steelhead appliances and thus eliminate and avoid servers at remote sites. One customer estimates that it has been able to avoid the acquisition of over 500 servers across all of the company's sites. On average, customers in this study are avoiding 145 servers since the Steelhead deployment — an annual savings of \$698,101 on average.

Backup and recovery practices have been improved, and Riverbed users are avoiding the costs for servers and new tape drives.

### ***Support Licenses***

The cost of support licenses has been reduced since the deployment. As one customer said, "I would have gone out and bought new server support licensing, but by using Riverbed, I was able to take the existing server and license and just move it to the datacenter. If we open new offices now, we need basically just the cost of the Steelhead plus a small add-on price to add the Riverbed Services Platform." On average, customers are saving \$83,792 per year on licensing fees.

### ***Tape Backup***

With regard to backup tapes, a customer said, "We're doing remote backups, which we couldn't do before. We're avoiding tapes and the cost of three to four tape drives per location." As some customers reduce the number of tape drives they require, others are retiring them altogether. "We are in the process of eliminating all tape drives and centralizing our backups," one manager said. "Before Riverbed, when we transferred a lot of data, we would often get as far as three to four weeks behind on the backups. But, after we put Riverbed in place, it has been extremely rare to ever be more than a day behind." The average annual savings on tapes, tape drives, and vaulting is \$84,639.

### ***Travel and User Mobility***

Riverbed Steelhead customers have also reduced costs associated with travel and offered improved performance for their mobile users. One customer mentioned, "Because we were able to reduce the bandwidth, we were able to roll out a videoconferencing program. And that's huge because we travel a lot. We're saving about \$100,000 per year thanks to Riverbed."

Customers have implemented Riverbed on their laptop devices at their remote sites, which allows users to more efficiently work from abroad. One manager said, "We are seeing an improvement between 40% and 50%. These are our executive-level people as well — at least 50 of them are using mobility on a regular basis."

International companies with a large number of travelers have been able to reduce the total megabytes their users generate on 3G wireless data access plans by implementing the WAN accelerator. A manager mentioned, "We've had people that travel overseas all the time and create hundreds of megs of traffic. Most of our plans have a limit on megs, and after that there is an additional cost. But with Riverbed we've been able to bring those megs down below the limit and pay only the base fees on their accounts. On average, the annual savings on travel and improved mobile services is \$172,009.

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## **Improved IT Operations and Staff Efficiency**

Since deploying Riverbed Steelhead, IT organizations have been able to significantly reduce the number of total FTEs required to manage the environment. Customers experienced reductions in the amount of time needed to manage the network, manage the infrastructure, perform server administration, and manage and deploy applications.

### ***Centralized Server Management***

Riverbed Steelhead has allowed customers to centralize server management, which reduces the time the IT staff must spend on those tasks. As one manager said, "We are able to manage and be proactive with the people we already have on board. We don't have to manage the servers in our remote offices, and we don't have physical servers in locations without technical people. So we don't have to coach people about pushing the right buttons or doing the right things. I'd say that we're easily saving five hours per month because of this." On average, customers have saved 10.9 FTEs on IT operation tasks.

### ***Increased Staff Efficiency in Backup and Recovery***

Improved IT staff efficiency is driven by faster restore times, shorter backup windows, and increased help desk performance. As one customer noted, "We have a savings in the manpower for maintaining our servers. When they did the backups, they had to babysit them for a couple of hours per day — checking that the backups were done and dealing with any problems along the way. They also had to maintain the patch levels." Since the Riverbed deployment, central backups take less time. Customers in this study have reduced their backup windows by as much as 25 hours. In addition, Riverbed customers in this study have reduced data recovery by an average of 83% — the average restore time has been cut from 8 hours to just 1.3 hours.

### ***Improved Help Desk Performance***

There has also been a significant impact at the help desk. Since the deployment, help desk staff now handle 17% fewer calls and are saving an average of 11.8 hours per week. As one manager said, "We still have a pretty high call volume, maybe 4,000 calls per month. But we have cut the length of the calls in half."

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## **Increased User Productivity**

When IT organizations are able to reduce the number of incidents and/or reduce the duration of incidents, users have more available time on the system to perform their tasks. Riverbed customers have been able to reduce downtime by an average of 15.3 hours per year. As one manager said, "Virtually every user was impacted by downtime. The improvement has really changed the way that we do business because it is saving our users at least a couple hours per week." On average, user productivity has increased by 6.5% — a gain equal to \$1,208,941 per year.

Following Steelhead deployments, IT organizations are able to be more proactive and build redundancy into the datacenter that would not have been possible if the servers were not centralized. One customer noted, "We were hindered before because we had to run our servers from each location. When one of our servers would go down, we would have to take care of that manually, and that became a huge problem. We also didn't have any visibility into how much downtime we had, so we couldn't get ahead of a situation because we didn't have control over those servers. But since we've had Riverbed, that has been improved by 20–30%."

The average reduction in hours of downtime in this study is equal to a savings of \$2,417,362 annually.

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## **Increased Revenue**

Faster application deployment times were cited as the primary reason for increased revenue since the Riverbed deployment. As one customer said, "It takes us less time to do upgrades and get things out to the market. We have gone from 10 days to deploy to about three or four days."

Because new revenue can be generated only after absorbing top-line costs, IDC enters only a small percentage of reported revenue improvements into the ROI analysis. Average annual revenue increase in this study is \$418,874.

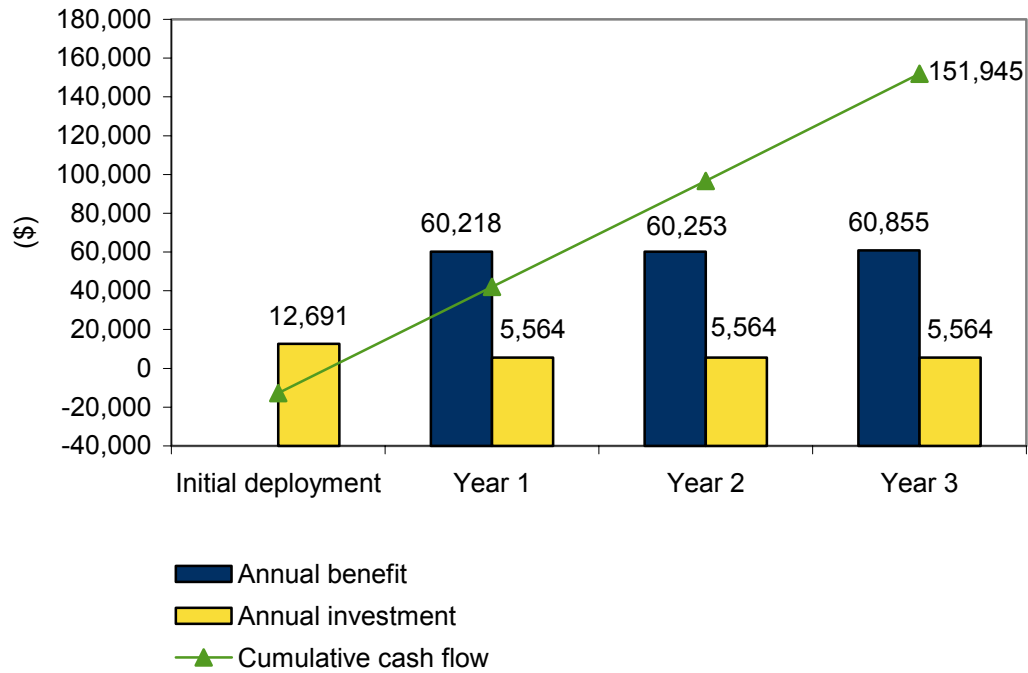
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## **Benefit and Cash Flow over Time**

The annual benefit, annual investment, and cumulative cash flow over three years are shown in Figure 2. Benefits tend to increase slightly over time, while the greatest investments are made at the outset of the deployment and level off over time. Benefits include the areas mentioned earlier in this paper. Ongoing investment is based on hardware turnover and IT time required to maintain the solution.

**FIGURE 2**

Investment, Benefit, and Cash Flow over Time per 100 Users



Source: IDC, November 2009

**Payback and ROI**

The Riverbed ROI analysis is based on initial and annual investments compared with the benefit over three years. The results in this study are based on IDC's interviews of Riverbed customers in aggregate. IDC finds a return of 457% and payback in 6.9 months (which includes time to deploy). Table 2 displays the results.

**TABLE 2**

Three-Year ROI per 100 Users

|                         |            |
|-------------------------|------------|
| Benefit (discounted)    | \$145,115  |
| Investment (discounted) | \$26,053   |
| NPV                     | \$119,062  |
| ROI                     | 457%       |
| Payback                 | 6.9 months |
| Discount rate           | 12%        |

Source: IDC, November 2009

## IDC ANALYSIS: CHALLENGES AND OPPORTUNITIES

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### Challenges

WAN optimization has proven resilient during the economic downturn with its ability to provide real savings to organizations. Even so, the path to future growth is not without challenges. Virtualization is changing how organizations evaluate remote branch infrastructure. Riverbed will need to continue to keep pace with virtualization platform evolutions in order to ensure that its WAN optimization solutions can participate in the customer migration to cloud technologies. It is critical that Riverbed continue to invest in virtualization from two different but related areas:

- ☒ WAN optimization innovations in support of the growing adoption of desktop and application virtualization
- ☒ Packaging options that support a virtualized infrastructure deployment

At a high level, network managers never have the luxury of resting on their accomplishments. Network bandwidth, connection types, and applications are constantly evolving and changing communication patterns, and the pace of change is only accelerating. Riverbed will need to understand the nature of new cloud services and cloud infrastructures. In particular, Riverbed will need to keep pace with how these next-generation technology road maps will impact WAN communications and determine how to position its products to continually offer value to end users relative to application performance and WAN optimization.

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### Opportunities

Given the multitude of challenges facing IT managers today, Riverbed has a wide-open opportunity to either solve those problems outright (in the case of bandwidth savings) or contribute to the solution (in the case of enhanced disaster recovery policies and procedures). It is imperative that Riverbed solutions focus on the needs of the network manager, whose objective is to reduce network costs, improve staff effectiveness, increase network resiliency, and boost network responsiveness. The wide applicability of this technology is what makes Steelhead also relevant to storage, server, and application teams. As such, the following opportunities are available to Riverbed:

- ☒ **Enable adoption of cloud-based services.** As the ecosystem of cloud-based services evolves from hosted email to hosted customer relationship management, Riverbed has a role to play in enabling IT to cost-effectively utilize these services.
- ☒ **Communicate an enterprise network solution strategy.** Riverbed must demonstrate how its products support a vibrant, flexible enterprise network architecture that meet new evolving global business process demands, including disaster recovery, growth in mobile workers, and IT efficiency.

## CONCLUSION

The benefit of Riverbed Steelhead to meet customer requirements is clear. Organizations continue to evaluate and deploy WAN optimization to facilitate key IT requirements. In particular, the ability to enable organizations to reduce costs while meeting key business process optimization goals will continue to drive Steelhead deployments.

## CASE STUDIES

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### **Canadian Cancer Society, Ontario Division**

#### ***Background***

The Canadian Cancer Society (CCS), Ontario Division is a private nonprofit organization funded by donations from the public and money raised through fundraising activities. Each province is a division of the Canadian Cancer Society with a divisional Board of Directors, chaired by a volunteer divisional president. The Ontario Division is divided into 7 regional offices, which offer administrative support to 34 community offices throughout the province. In addition, branches located in smaller communities are run entirely by volunteers with support from their local unit offices. Further, 65,000 volunteers across Ontario assist the organization with meeting its goals.

The CCS Ontario Division has 550 employees who rely on servers with direct-attached storage in all 40 offices across the province of Ontario. While the servers needed to be upgraded, an even greater problem was that the organization had to back up the servers centrally and was quickly running out of a backup window to complete the backups. After weighing its options, the CCS Ontario Division decided that rather than upgrade the servers, it would centralize the file servers to negate the backup problem.

The primary goal during the implementation was to reduce operational costs. The organization deployed Riverbed's Steelhead solution and was able to facilitate an initiative that consolidated its file server infrastructure while increasing its file server capacity to support business expansion.

#### ***Business Impact of Steelhead WAN Optimization***

- ☒ **Increased capacity and decreased costs without performance loss.** The CCS Ontario Division was able to decrease its server costs with the use of virtualization and centralization. The organization installed a larger server in the datacenter with VMware. Now all 40 sites share one server.
- ☒ **More efficient server and data backup.** The new centralized servers are now part of a SAN deployment. As a result, the data at the remote branch offices is stored on a centralized SAN. With a new SAN architecture, the CCS Ontario Division was able to deploy a duplicate SAN at its disaster recovery site. Thus, the organization does disk-to-disk backup over the network and has a much more streamlined disaster recovery solution.

- ☒ **Improved user productivity.** According to Gerald Holmes, director of information technology at the CCS Ontario Division, "The performance, to the end user's perspective, was better than when it was local." The users in the remote offices accessed email and two or three key applications through the central server. Email performance was extremely improved in terms of speed and access, and the applications that were using HTTP were faster as well.
- ☒ **Streamlined installation.** The CCS Ontario Division was very impressed with the simplicity of installation. A single staffer in the central office was able to complete the deployment across several locations. According to Holmes, "We packaged it up and sent it out. The secretary in the local office installed it in about 15 minutes per site. We were able to show pictures of how to take the cables and plug them into the right places. We had just one setup for all 40 offices."
- ☒ **Enabled new VoIP application for enhanced customer intimacy.** The CCS Ontario Division achieved sufficient improvements on its network utilization and was able to deploy VoIP without changing the network bandwidth or overall infrastructure. The benefit is that the organization is able to handle client inquiries more efficiently and improve client satisfaction. As Holmes said, "We have clients phoning in, and these are people who don't need to fight technology when they call — they have questions about cancer. Before, they would phone a local office to get a question answered, and we had to give them another number to call. But now we can do what we call a 'warm transfer.' We are able to connect them to a person who can help, directly. It's a much better experience on the client side."

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## **HNTB**

### ***Background***

HNTB is a United States–based engineering firm that employs over 3,500 people in over 80 locations. The company deployed Riverbed Steelhead over the course of two years and has been using the solution for over four years.

In addition to selecting Riverbed Steelhead for its ability to provide a better file sharing mechanism, HNTB chose the solution because the company's infrastructure services team felt the features fit better into its environment than other WAN optimization solutions and because the solution requires comparatively minimal administration and setup time. Riverbed offers the company an effective and efficient way to share data across its many branch office locations.

HNTB noted that Riverbed was the least expensive option from an operational expense perspective, with reduced administrative and overhead costs. With regard to Riverbed ongoing maintenance, Wes Owen, manager of infrastructure services at HNTB, noted, "We don't have to 'tell' every Riverbed box about every other Riverbed — they automatically know where the other Riverbeds on the network are sitting. With other solutions, we would have had to actually configure the whole Web, which would be a disaster for us in terms of time." Owen estimates that setting up each Riverbed appliance required less than one hour per device or location.

### ***Business Impact of Riverbed WAN Optimization***

- ☒ **Increased user productivity.** Every user at HNTB has benefited from Riverbed in some way. The solution has changed the way the company works. An increase in user productivity has been the greatest value proposition of Riverbed for HNTB. The company estimates that users are saving 2–5% of their time avoiding the rework required when files are accidentally deleted. As mentioned in the interview, "We are saving a couple hours per week since people do not overwrite another user's data. Before that, a user would have to go back and do it all over again — that is completely avoided."

Engineers and architects located across the United States collaborate on a regular basis. In the past, they were required to manually download files to a local server and then attempt to consolidate multiple copies of a project back on to a central server. This method increased the risk of version control errors, resulting in unnecessary inefficiencies. With Riverbed, HNTB's engineers are able to share files directly over the WAN, allowing them to "eliminate those extra tasks and work in a much more effective fashion," said Owen.

- ☒ **Improved mobile quality.** The company maintains 450 laptops for regular mobile users, all of whom have the Riverbed mobile client installed. HNTB users had become so accustomed to Riverbed that they were willing to purchase and carry Riverbed units when they travel because a 64-bit solution was not available. According to Owen, "Our users are even willing to carry an extra device with them to get the benefits on those rare cases they required a 64-bit OS. They will take the box home with them, or to a hotel or client site, in order to get optimization on their data. It has become that important to them. "

The company also tested satellite transmission speeds. Satellite transmissions traditionally have a lot of latency, and HNTB was seeing transfer rates three to four times longer than those of landlines. HNTB estimated file transfer speeds similar to landline speeds if it were to use them in conjunction with satellite transmissions.

- ☒ **Streamlined IT infrastructure.** After the Riverbed deployment, Owen said, "What happened at first was our bandwidth usage actually went down. Riverbed was reducing the bandwidth needed, and as users got accustomed to the improved performance, they worked with their files in a different manner. This has been changing the way that our people do business."

Outlook performance was improved dramatically. Recently, HNTB had a case where Outlook traffic was not being properly optimized after an upgrade to Outlook 2007. The calls started to come in to the help desk immediately. Owen noted that "once our configuration issue was addressed, the calls stopped."

The company has also eliminated tape drives at its branch offices and centralized the backups. Riverbed not only is helping to save the company hard costs associated with tapes and backup but also is reducing the company backup window and improving data backup timeliness. As Owen said, "Back in the day, when someone transferred a lot of data, we might find that we were three to four weeks behind in getting that data back to the central site —

it was just queued up and waiting. After we put the Riverbeds in place, it's extremely rare to ever see us more than a day behind now. It has reduced the time the data is at risk considerably."

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