

## WHITE PAPER

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# Achieving Business Value with Network and Application Visibility

Sponsored by: Riverbed Technology

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## EXECUTIVE SUMMARY

IDC conducted nine in-depth interviews with current Riverbed Cascade customers in order to obtain qualitative information about the end-user experience since deploying the network and application visibility solution, and obtain quantifiable data specific to each customer. The information and data gathered serve as the foundation for the return on investment (ROI) analysis presented in this paper. IDC explored each customer's experience before and after the Cascade implementation. The change in users' experiences was then aggregated for the purposes of the ROI analysis. IDC has found that customers deploying Cascade experienced significant cost reductions, reduction in network downtime, and improved IT staff productivity as well as increases in end-user productivity. Riverbed customers reported to IDC that Cascade enables them to achieve strategic objectives such as IT consolidation and disaster recovery.

The following are highlights from the IDC ROI research on Cascade:

- ☒ The aggregate analysis yields a three-year ROI of 364% and a payback period of 5.5 months.
- ☒ Aggregate results show that Cascade customers experienced 34% fewer downtime incidents per month and the average incident's duration was cut by 51%.
- ☒ Mean time to repair (MTTR) was reduced from 12.8 hours to just 2.1 hours, on average.
- ☒ Customers saved an average of 2.27 full-time equivalents (FTEs) after deploying Cascade in the following IT task areas: auditing networks and managing inventories, pushing out network changes, detecting network changes, analyzing the network in general, and planning capacity and infrastructure.
- ☒ The duration of the average help desk call was cut by 87%.
- ☒ Cascade customers saved an average of \$53,431 per year on server purchases.
- ☒ Avoiding the purchase of additional tools saved customers \$123,449 annually, on average. Cascade enables customers to leverage flow data rather than classic probe-based approaches.

## 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 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, including 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, monitoring instrumentation, 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 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 help desk administration time (reduction in calls per month and shorter duration per call) and the time required to troubleshoot database problems.
  - ❑ The respondents reported significant time savings and improved accuracy in application discovery and dependency mapping. This enables faster consolidation efforts with more confidence in the results as well as positive results with seamless migrations.

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 Cascade. To normalize the data, IDC presents 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.

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## **SITUATION OVERVIEW**

### **Meeting Business Requirements with the Network Infrastructure**

The enterprise network is transforming the very nature of business today. From new Web 2.0 companies to long-standing institutions, the network is the central IT asset that supports ongoing operations and future growth. The network enables a company to expand into new geographies, enter new markets, diversify its employee base, and create new products and services. As a result, the role of the network and its criticality to ongoing operations are expanding. The network is required to foster seamless communications throughout a global business. In turn, the expectations that business managers have from network managers only continue to grow. In order to effectively and efficiently meet business requirements, network managers must accomplish the following:

- Maintain service-level agreements (SLAs) with business- stakeholders

- ☒ Predict and analyze changing network conditions
- ☒ Identify and correct applications that are disruptive to the business-critical network
- ☒ Actively manage scarce and/or expensive bandwidth resources
- ☒ Protect and defend against and limit business disruption caused by security breaches

Network service providers (SPs) and system integrators (SIs) face an additional set of challenges. Since they deploy and manage networks for multiple customers, they need to centralize their network management function in order to gain economies of scale. In addition, they need to demonstrate that the performance SLAs that they committed to their customers are being met.

### ***Addressing Real-Time Application Performance and Availability over the Network***

Businesses recognize that in order to remain competitive they need to continue to invest in productivity applications such as SAP and Oracle and collaboration applications such as Exchange and SharePoint. As these applications increase in importance to ongoing operations, their performance will dictate the success or failure of any new corporate initiative. Because the enterprise network connects every IT entity within an organization, from datacenter assets such as servers and storage to end-user centric devices such as PCs and printers, network conditions are very much like the weather — they may have patterns, but they are not predictable. IDC finds it is very common for an organization to simply not know the types of applications, number of devices, or array of traffic on its enterprise network. This complexity not only breeds application performance problems but also has the potential to expose companies to security threats. In order to meet real-time application performance requirements and provide comprehensive security, organizations face a number of challenges:

- ☒ **Aligning the network with business priorities.** In the era of unified communications, organizations are actively looking to leverage network technology to support sales, marketing, and partnership activities. The use of technologies such as WebEx, VoIP, and telepresence is becoming the new norm. These applications are becoming business critical, but their impact on the network is still unknown. The ability to understand current network traffic patterns and actively measure and monitor new and emerging business-critical applications is essential for the successful service delivery of any IT organization.
- ☒ **Consolidation.** The age of hyperconsolidation is taking hold in enterprise IT. Whether it is server consolidation, application consolidation, or the use of server virtualization, IT is using consolidation as a way to reduce costs and to bring global organizations onto a level playing field. The benefits of consolidation can be achieved only if a complete understanding of network traffic and dependencies is in place.

- ☒ **WAN optimization.** Although WAN optimization is widely recognized as a top CIO priority, it is no longer enough to treat it as a tactical solution. With traffic patterns changing, acceleration alone is not enough. As networks and the applications that traverse them change, the tools used to manage them need to adapt, so IT can remain a step ahead of problems and deliver consistent performance of mission-critical applications. Visibility and performance management are no longer ancillary to WAN optimization; they have become part of its natural life cycle. Similarly, reactive WAN management is giving way to continuous assessment, where administrators discover and correct problems before end users notice enough to complain.
  
- ☒ **Flexibility to support new business policies.** A rigid locked-down network environment may be the most secure, but the drawback is limiting potential new business opportunities. Network managers recognize that they must keep ahead of new potential threats but not at the expense of the business. The increase in the number of threats, coupled with the explosion of devices on the network, creates difficult security trade-offs.

### ***Realizing Cost Savings Through Consolidation***

As the period of hyperconsolidation and virtualization takes hold in enterprise IT, enterprises are consolidating the number of datacenters they have in order to reduce the complexity of managing IT devices spread across a global organization. As part of this effort, centralization of all IT assets (servers, storage, desktops) into the datacenter from the remote branch is viewed as a way to reduce costs and maintain security.

In addition to this physical and virtual server consolidation effort, IT is on a quest for "one version of the truth." Application consolidation enables a global business to make coordinated intelligent decisions based on accurate real-time business analytics from a centralized location. Additionally, many IT managers feel that in order to remain competitive, all employees, regardless of location, must have access to the same consistent data set to make appropriate decisions. In order to fully realize the cost savings benefits of this approach, IT needs to make sure the network has the following qualities:

- ☒ **Always on.** As IT assets are centralized back into the datacenter, the only way to ensure ongoing operations is for the network to be always on and available everywhere.
  
- ☒ **Diversity of support.** With the tidal wave of new types of content on the enterprise network such as email, file and print data, backup data, and video, it is critical that the network be able to support predictable application performance of all types of network traffic.
  
- ☒ **Visibility.** By understanding how the network is being used, IT can make intelligent purchasing decisions. Visibility helps a network manager do a more detailed analysis of how resources are being used, which may help avoid unnecessary and costly bandwidth upgrades. Visibility is an essential first step to help IT determine appropriate acceleration investment decisions.

- ☒ **Knowledge of all moving parts.** Beyond visibility into utilization, IT needs a clear understanding of all the infrastructure necessary for the delivery of an application and how different hardware software and network resources are dependent upon one another. These dependencies may be on the LAN or WAN, corporate owned, or provided by a third party, but their discovery and mapping is integral to consolidation efforts.
- ☒ **Wide area network performance.** As the corporate network spreads to the remotest locations, and IT assets get consolidated into fewer datacenters, users find themselves further from their applications and their data. Users still demand LAN-like performance, regardless of their location. The use of WAN optimization is critical to giving all employees in a global organization fast, predictable access to corporate applications and data.

### ***Minimizing Expenditure on Infrastructure with Visibility***

Network managers require the most cost-effective tools to understand network traffic patterns and application performance. Existing installed switches and routers from the leading vendors publish traffic statistics with NetFlow or similar technologies. By analyzing flow data, network managers can build a picture of traffic volume and application performance on a network. This is a cost-effective approach to application performance management because it is nonintrusive (i.e., it does not require any modifications to applications).

### ***Increasing Investment Protection with the Addition of Reporting and Monitoring of Network Behavior***

Telecom costs are on average 15% of an IT budget. They are ongoing monthly costs, and unlike most other areas, IDC has found that IT managers know exactly how much they pay a month in ongoing telecom costs. As a result, the WAN is an investment that needs to be monitored and managed. IT managers will get the most from this precious investment if they have the ability to do the following:

- ☒ Understand all the components necessary to deliver an application.
  - ☐ IT needs a granular understanding of traffic patterns. For example, the ability to understand "top talkers" and "top listeners" gives IT more detailed information regarding the actual exchange going on in the network, while "bottom talkers" can prove equally valuable as a prime list of candidates for consolidation or virtualization. An understanding of the relationships and dependencies between these clients and servers allows for operational change with minimal risk of service disruption.
  - ☐ Additionally, the location of the devices or users and how they communicate with each other is important information and enables managers to architect optimizations most efficiently.
- ☒ Benchmark performance to understand best practices in order to know what a "typical" day on the network looks like, what the peak historical workload is, and what the network's capacity is — all critical baseline metrics necessary for informed network management.

- ☒ Set off alerts to act upon meaningful changes in the network that could degrade or disrupt the business.
- ☒ Correlate poor WAN performance with application behavior.
- ☒ Determine if SLAs are being met.

### ***Improving Staff Productivity***

Ideally, network managers are in communication with business and application managers and understand the network requirements of a new business application hitting the network. If they are, the network administrator can take the time to make sure that the appropriate network bandwidth and service levels are available. The ability for a network administrator to plan and implement the appropriate service levels needed in a given time frame is ideal and increases overall end-user and IT productivity. Unfortunately, organizational and technical factors can inhibit a network manager's ability to get ahead of the problem.

A proactive approach to network planning and implementation improves IT staff productivity, enabling the following competencies:

- ☒ **Automatic alerts.** The help desk has historically been the last to know of a problem. The staff has had to rely upon users picking up the phone and calling to complain. By the time users call to complain, service is typically severely degraded and frustration is running high. Proactive network management, based on network behavioral analytics capabilities, enables detection of meaningful change as soon as it happens, allowing operations teams to resolve issues before critical failure and user uproar.
- ☒ **Clearly identify the source of a problem.** Finding the source of a problem enables an organization to fix the problem. Any number of factors can contribute to network performance problems, including device failure, Internet service problems, or new unexpected applications joining the network. Network visibility reduces the amount of time to address the situation.
- ☒ **Confirm restoration to preincident service levels.** Knowledge of benchmark performance levels lets operators confirm when service levels are restored to their preincident levels, removing any doubt about the effectiveness of the correction. Furthermore, visibility across the entire network ensures that new problems do not arise as a result of the initial repair.
- ☒ **Proactive approach to network changes.** In order to have minimal disruption during moves, adds, or changes to the network, network managers must have the visibility to understand how specific applications behave.
- ☒ **Maintain consistency across departments.** Inherent in the value proposition is that the network is a shared resource. While all parts of an organization use the network, not every department uses the network in the same way. Visibility into the network enables the network manager to set fair use network policies and to demonstrate and track any deviation from policy. For example, if one department is running backup procedures on the network that are causing end-user performance problems, network managers now have the ability to demonstrate this situation.

- ☒ **Confidence.** Harder to quantify, but incredibly valuable, is the confidence that network managers have to make changes to the network. Most network managers will describe a reluctance to make any changes to network settings or policies for fear of creating unknown problems. Network visibility provides not only time savings but also the comfort level needed to make critical changes to the network. As one customer reported, "We feel more comfortable having better information. We feel more comfortable when we're making changes."

IT organizations realize that in order to reduce costs and respond to business demands, individual departments within the IT organization need to communicate and coordinate projects.

In large global organizations, very often there is a problem that cuts across multiple teams. Global visibility eliminates the need for situations in which every different team is working in its own silo and trying to troubleshoot problems. In addition, visibility can facilitate IT consolidation, leading to less fragmentation of efforts across teams and geographies.

### ***Implementing Data Protection to Meet Regulatory Requirements***

Regulations are, by their very nature, descriptive. IT compliance translates these regulations into a set of policies, identifies the associated storage and computing assets that are impacted by these policies, and defines the appropriate controls and control objectives. IT compliance needs to formalize the content, framework, and associated activities that corporations would adopt based on their interpretation of the law, regulation, and corporate policies. Network managers are asked to support these efforts, particularly in support of data protection.

IT departments must offer this service within the constraints of their existing network infrastructure. They must ask themselves: Do I have visibility and controls to handle the demands of the business and balance it with the regulatory pressures I am faced with? The only way to answer this question is to know exactly what is going over the network at any given point in time. They want to undertake this effort cost-effectively by leveraging existing data sources and minimizing the need for new equipment.

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## **Riverbed Technology's Network and Application Visibility Solution**

To address the network manager's challenges outlined previously, Riverbed Technology offers Cascade. Cascade provides businesses with an application-level view of their networks and servers. Through the use of network behavioral analysis, Cascade can learn typical behavior and proactively alert IT to issues in the environment, assist in consolidation efforts, accelerate triage activity, and spot suspicious behavior worthy of security investigation.

For service providers and system integrators, Cascade offers a cost-effective way to manage IT assets for multiple customers, even when the network resources are being shared. Cascade can also provide the metrics they need to track performance SLAs they have agreed with their customers.

Cascade provides additional benefits for businesses with remote offices and mobile users that are deploying WAN optimization, and also for service providers that offer WAN optimization as a service. Built-in reports identify optimization candidates and measure the savings, resulting in a repeatable process for accelerating and adapting the WAN for optimal performance.

The Cascade portfolio consists of the following:

- ☒ **Gateway.** This product collects flow data from routers, switches, and other devices, supporting all common flow types. It can be deployed in the datacenter with Profiler or regionally.
- ☒ **Sensor.** This product provides Layer 7 application classification and performance metrics collection, including response time and TCP health, and it collects traffic from SPAN ports or network taps and can be deployed in the datacenter or the branch office or both.
- ☒ **Profiler.** This product offers centralized reporting and analysis as well as behavioral analytics. It collects data from Sensors and Gateways and is deployed in the datacenter.

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

- ☒ Shift operational response from reactive to proactive
- ☒ Streamline troubleshooting to reduce the impact of service outages and slowdowns
- ☒ Reduce the risks and costs associated with datacenter change
- ☒ Identify bottlenecks where WAN optimization would best accelerate the business
- ☒ Achieve cost-effective compliance by leveraging existing data sources and minimizing the need for expensive hardware deployments

## IDC'S ROI ANALYSIS

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### Demographics

IDC interviewed nine companies that have been using Riverbed Cascade for between four months and five years. Respondent companies ranged in size from 1,000 to 100,000 employees. The median companies had 3,000 employees, 90 IT staff, and six Cascade users. Table 1 displays the demographics in this study. Companies represented several industries: chemical, financial services, manufacturing, utilities, engineering, and healthcare.

**TABLE 1****Demographics**

Demographics	Median
Number of employees	3,000
Number of IT staff	90
Number of employees per IT staff	23
Number of Cascade users in IT	6
Geography	North America, EMEA

Source: IDC, 2010

**Selecting Riverbed Cascade**

Customers deployed Riverbed Cascade for a variety of reasons, including improving availability and performance, supporting consolidation efforts, and assisting WAN optimization and security efforts.

Some customers had no management tool prior to the deployment, while others were looking to improve upon existing applications. As one manager said, "Before Cascade, we were not using anything, and we were not able to ensure that certain policies were being followed. We could have been racking up violations for all we knew — which means we were certainly at risk during audits."

Customers improved their staff efficiency by reducing time spent performing manual tasks. As one manager said, "To do what we needed to manually before took anywhere from 40 to 80 hours per audit, and we did that twice a year. We had a three-person team conducting those audits, so that was a significant amount of time we needed to cut down."

**Deployment**

In this study, deployment time lasted between one week and four months — with a quick average deployment time of 1.6 months. As one manager said, "The install was really fast. One of Riverbed's engineers came onsite and spent a day or two with us. We had it up and running and were collecting data and reporting right after that." With regard to the deployment another customer said, "The deployment took about a day — then we piloted Cascade for a week, and we were ready to go."

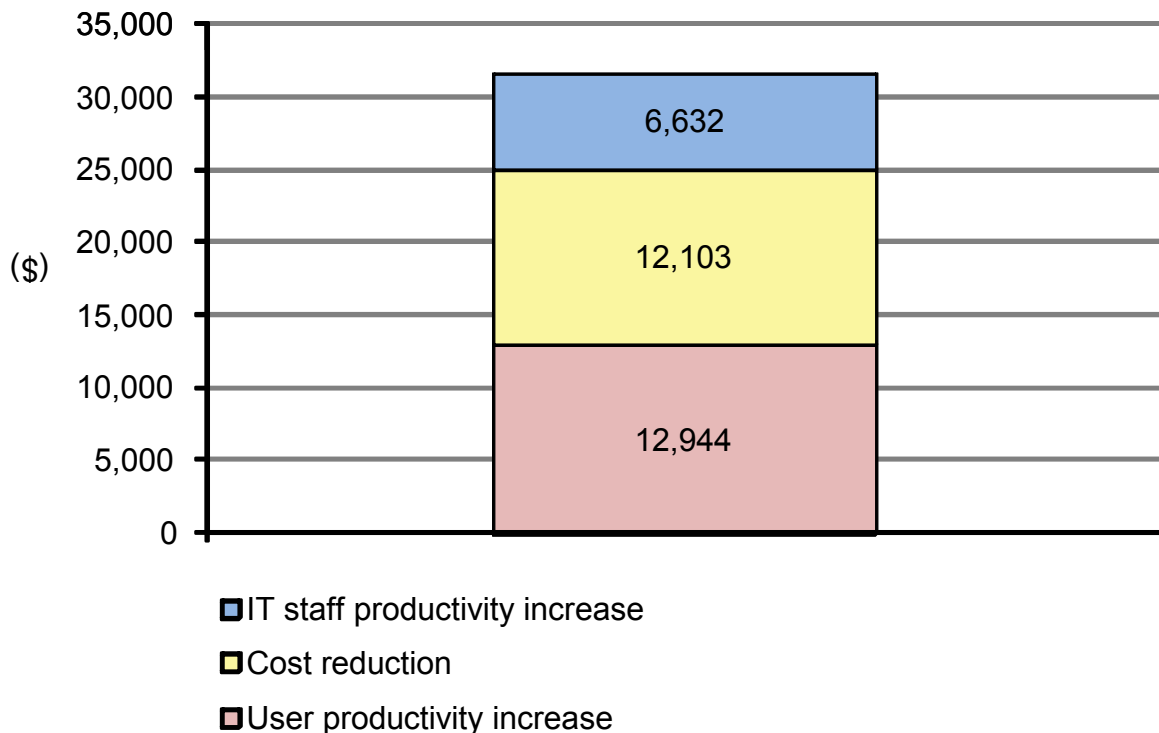
Riverbed Cascade customers in this study noted how relatively easy the application is to maintain. One manager said, "I have to say it is remarkably low maintenance. We have been through three major upgrades in three years, and I don't even spend 10 hours per year doing that."

## Benefits

IDC found that customers in this study achieved benefits in three high-level areas: IT staff productivity improvement, cost reductions, and increased user productivity/fewer hours of downtime. The aggregate savings in this study is \$1.02 million per year, and as Figure 1 shows, customers saved \$31,679 per 100 end users per year.

**FIGURE 1**

Average Annual Benefits of Riverbed Cascade per 100 Users



Source: IDC, 2010

### ***IT Staff Productivity***

Since deploying Riverbed Cascade, users have been able to resolve problems faster because the application allows their organizations to clearly identify the root cause of problems and where they reside more quickly than in the past. More specifically, it allows IT staff to identify problems earlier and more accurately, leading to a quicker and more efficient repair process.

One manager said, "When someone tells us the network isn't working, we immediately look into the roundtrip time and time to respond to the server. We can

immediately determine if it's a connectivity issue or a server issue. If we didn't have this tool, we would be relying on older tools and spending 10 times the hours gleaning data and doing that work."

Customers have saved time:

- Auditing networks and managing inventories
- Pushing out network changes
- Detecting network changes
- Analyzing the network in general
- Planning capacity and infrastructure
- On average customers in this study have saved 2.27 FTEs per year on these IT tasks.

IT organizations have improved monitoring, which has increased error prevention and led to a reduction in escalations. The IT staff spends less time resolving problems and making repairs. As one manager said, "I can now see if someone misconfigured an interface or accidentally assigned a batch job to the wrong machine. It alerts us about that automatically." This organization estimates a team of 10 staff is saving 10 hours per month since the deployment.

Customers have been able to avoid duplicating efforts since the Cascade deployment. With the solution in place, alerts no longer set multiple people into action. As one manager said, "When we have a problem, we don't have four or five people running off in all different directions. We can now take a step back, have a look at all the information, and take the best course of action."

### **Mean Time to Repair**

Since implementing Riverbed Cascade, customers have reduced mean time to repair (MTTR) by an average of 83% — from 12.8 hours per repair to just 2.1 hours. One customer noted that in the past, the staff could spend up to two weeks repairing problems caused by a severe incident. But since deploying Cascade, an IT manager said, "We haven't had anything like that for four years. We still have incidents on a regular basis, but we catch them literally in one minute, and we shut them off before they do any harm." This customer estimates that the time savings since the deployment is "worth more than 1.5 FTE."

### **Help Desk**

Because there are fewer incidents, the number of help desk calls has declined slightly — by 2%. More importantly, the duration of the average help desk call has been dramatically cut — by 87%. Call duration is shorter because the help desk staff is able to tell users why they are experiencing a problem and have better estimates about when the issue will be resolved. As one manager said, "In our case, we still have a good number of calls per week. But those calls take only 25% of the time they used to because we rule out many possible explanations, whether they are network or server issues, and we can give the user better information faster."

## ***Cost Reductions***

### **Hardware Savings, Avoided Tools, and License Savings**

The trend from probe-based solutions to flow-based technologies has resulted in fewer annual hardware purchases than in the past. Customers in this study are saving an average of \$53,431 per year directly related to fewer hardware purchases. One customer said, "It would cost millions of dollars to do what Cascade does from a NetFlow perspective. Each interface would have to have its own sniffer, and for us, that is across 350 interfaces. Then you have the license costs for the sniffers, and we have to double our port density. We are talking a lot of money to duplicate what we are getting now."

One company estimates that continuing to use its old solution would cost an additional \$100,000 per year in licensing fees. As the manager said, "Across our entire infrastructure, we are able to cover 50 more interfaces with Cascade than we were previously. To cover those additional 50 interfaces, we have needed a license pack that would cost another \$100,000 to do this."

### **Avoid Hiring Additional IT Staff**

Customers have been able to avoid hiring new IT staff because Cascade helps companies reduce the amount of troubleshooting that is required to resolve issues in the system. It was mentioned in one interview that, "the alternative to Cascade is to gather metrics on the system after users cry out to us about some performance problem. In that sense, Cascade is proactive. From an operational perspective, we are able to help with performance issues and are better prepared for audits. This has cut our troubleshooting time down, and it helps us diagnose." This customer estimates that the company is saving at least one FTE since deploying Riverbed Cascade. In this study, customers are saving an average of one-quarter of an FTE per year.

### **Realize Consolidation Savings Sooner**

Dependency mapping reduces the time necessary to plan for consolidation by one-third to two-thirds and the time to validate consolidation by one-quarter. Thus the benefits of consolidation are realized sooner.

### **Bandwidth Savings**

Customers have been able to reduce the amount of bandwidth they need, which cuts their monthly expenses. Employees on YouTube, Facebook, iTunes, and other sites consumes valuable bandwidth during critical business hours. In addition, numerous interviewed customers told stories of unexpected backup and/or update processes going off schedule and consuming valuable bandwidth. One customer estimates, "At each of our sites, we save, on average, 25Mbps. So when you multiply that times all our applications, we are saving a lot per month." On average, customers in this study are saving \$52,382 per year in bandwidth costs.

### ***Increased User Productivity/Less Downtime***

Riverbed customers have been able to reduce downtime because Cascade analytics automatically baselines normal application activity and sends an alert upon

meaningful change. As one customer said, "I get the alerts, which allow me to do things faster. There are fewer hours of downtime because I learned about outages or bottlenecks faster than in the past, and in many cases, we are able to avoid an incident altogether." This customer estimates that downtime has been reduced from one hour a week to only one hour per month since the deployment. The customers in this study enjoyed a 34% reduction in the number of downtime incidents per month as well as a 51% reduction in the average incident's duration.

Downtime has a direct impact on the user base — as hours of unavailable system time add up, user productivity declines. As one IT manager said, "During the downtime, users are about 30% less productive. When we lose them, we've lost information feeds that we need to make a decision, which affects our management as well."

### **Security**

Because Cascade detects changes in network and application behavior, administrators can see if a machine starts "talking" excessively across common protocols and running outside of a firewall, which might indicate compromised systems. One manager noted, "We are alerted to anything that starts to make ping sweeps of any kind or looks like it is searching for something, and we can get to that right away."

On average, customers were able to reduce the number of users impacted by security incidents by 95%, from 26.5 people to fewer than 2 people. One customer said, "Once something hits our firewall, then we know it's there. Before, something typical would impact 50 people, but now only 2 or 3 people are impacted because it doesn't get as far into our system." This company estimates it is saving 15 hours per month working on security incidents. On average, customers in this study are saving 10.7 hours per month on security-related repair tasks.

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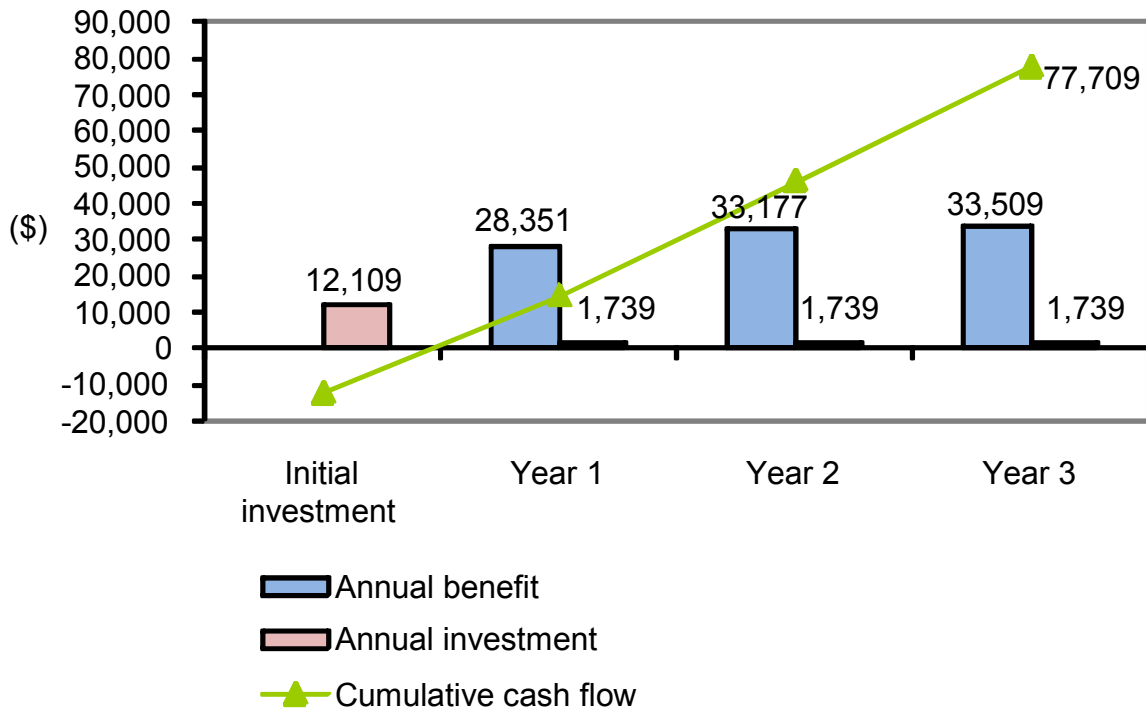
## **Cash Flow, Return on Investment, and Payback**

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

Figure 2 illustrates the annual benefit, annual investment, and cumulative cash flow over the term of the three-year IDC analysis. Investments are highest in the year Riverbed Cascade is purchased. Once the initial cost is accounted for, investment in the following years declines and levels off. Ongoing investment is based on standard hardware turnover rates, average maintenance costs, and IT time required to maintain Cascade.

**FIGURE 2**

Benefit, Investment, and Cash Flow per 100 Users



Source: IDC, 2010

***Return on Investment***

The three-year IDC ROI analysis on Riverbed Cascade is based on initial and annual investments compared with the benefits over that term. Based on the data gathered from the customers, this solution offers an ROI of 364% and payback occurs in 5.5 months. Table 2 displays the ROI results.

**TABLE 2**

## Three-Year ROI Analysis per 100 Users

Benefit (discounted)	\$75,613
Investment (discounted)	\$16,287
NPV	\$59,326
ROI	364%
Payback	5.5 months
Discount rate	12%

Source: IDC, 2010

**CHALLENGES/OPPORTUNITIES****Challenges**

Riverbed does face some market challenges, however. Providing a platform that can scale with the transaction explosion while simultaneously executing on new application types will be important. Riverbed must align its future road map with the tidal wave of applications and devices that continue to demand network services.

**Opportunities**

The expectations from business managers only continue to grow for network managers. Riverbed has a wide-open opportunity to facilitate the ability of network managers to create an environment where the network not only is connecting the business but also is a strategic resource to facilitate business objectives. It is imperative that Riverbed Cascade solutions focus on the needs of the network manager, whose objectives are to reduce network costs, improve staff effectiveness, increase network resiliency, and boost network responsiveness. As such, the following opportunities are available to Riverbed:

- Support new converged infrastructures.** IT is beginning to explore new converged infrastructures of servers, storage, and the network. Virtualization is central to the value proposition of these solutions. Riverbed Cascade has the opportunity to help network managers rapidly identify how these new solutions behave on the network.
- Enable adoption of cloud-based services.** As the ecosystem of cloud-based services evolves from hosting back-office applications, such as email, to

business-critical applications, such as customer relationship management (CRM), Riverbed has a role to play in enabling IT to cost-effectively utilize these services with a broader value proposition.

- ☒ **Communicate an enterprise network solution strategy.** Riverbed must demonstrate how its products support a vibrant, flexible enterprise network architecture that meets new, evolving global business process demands, including datacenter consolidation and WAN optimization.

## CONCLUSION

The velocity of change in enterprise networks is accelerating the need for application-aware network performance management. The ability of Riverbed Cascade to help IT align business priorities with the network is demonstrating a clear return on investment. In particular, the ability to support improved visibility into the network's traffic flow, helping to identify problems as they arise rather than when they impact the network, is of great value to an IT staff and the business it supports. In addition, support for datacenter consolidation projects, while bringing strategic clarity to WAN optimization projects, will continue to drive Cascade deployments.

## CASE STUDIES

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### Financial Services Case Study

#### ***Background***

An equities trading company, based in the northeast United States, was challenged by its large and complex network and the lack of visibility into what was happening on the network. At the time of initial implementation, this company did not have the ability to understand network traffic patterns or understand any anomalies on the network in an integrated fashion.

The organization's IT shop deployed Riverbed's Cascade solution and was able to roll out the functionality in a phased implementation, starting with the most critical portions of the network.

#### ***Business Impact of Cascade Application Delivery and Network Behavior Analysis***

- ☒ **Visibility and reaction time.** With visibility into the network, this equities trading company was able to decrease the time it took to figure out problems. Downtime is expensive for a trading firm, and any problem on the network can cost the company millions of dollars a minute. The swiftness with which the team can now locate and identify problems on the network is critical to the company's success. "Traditionally, we don't have that sort of visibility. You have to kind of research the issue at hand the old way, which is really going to a CLI [Command Line Interface...green screen], going through your network slowly, and trying to figure out what's going on. That would be very manual. It's a lot of automation that helps us out when there is an issue," noted the company's director of IT.

- ☒ **Proactive approach.** With Riverbed's Cascade product, the ability to change the orientation of network staff time from merely reacting to unforeseen problems to proactively avoiding network disruptions was critical to the success of the implementation. The company's network managers can now identify inherent problems and fix them ahead of time. Networks are never static, and problems can creep up over time as traffic patterns change. A link can begin to be saturated, or from a traffic engineering perspective, there could be a better way to engineer the traffic flow. According to the company's director of IT, Cascade "gives us those stats, and we can go back and redesign [retune] the network."
- ☒ **Bandwidth cost avoidance.** According to the company's director of IT, the Cascade deployment enables it to avoid upgrading bandwidth. As a network behavior analysis solution, Cascade helps the company determine how it can redirect traffic and avoid buying more capacity unnecessarily to service a particular site or region.
- ☒ **Global view streamlines IT process.** The team feels that the Cascade deployment is instrumental in enabling IT staff to use time most efficiently. IT avoids duplication across multiple teams within the company. The director of IT reported to IDC that "if there's a problem that's more global, that affects multiple teams, we can go to the centralized system, which is Cascade, and kind of identify it versus every different team working in their own silos and trying to troubleshoot things. Instead of having four engineers do the same thing, we'll have one guy pull the report off of Cascade and...identify the problem beforehand."

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## Pharmaceutical Case Study

### ***Background***

This global pharmaceutical company is headquartered in Europe with operations in multiple countries. The IT staff members at the pharmaceutical company describe themselves as "data hounds." When they were looking for solutions, they had two criteria: They were looking for a product that would accept "flow" detail records and that would read NetFlow. Cascade was the only solution that could meet those requirements without becoming a critical failure point in the network.

The IT department took a phased approach to implementation. Initially, it deployed a centralized datacenter approach and then expanded with gateway devices to remote locations.

### ***Business Impact of Cascade Application Delivery and Network Behavior Analysis***

- ☒ **Time savings.** Not only does this pharmaceutical company save time in identifying problems and resolving problems, but all IT users of the Cascade tool save time. "They all save time," noted the company's vice president of IT. "I'd say for doing the work that they are trying to do, that they save at least 75% of the time that it used to take to do the same...actually, they used to not be able to do it at all. It's a capability that they have that they never used to have. But they would have been spending the time doing other things."

- ☒ **Visibility.** Cascade gives the IT department a detailed understanding of network and site utilization. The company can identify "top talkers" and "top listeners" and get more detailed information regarding the actual TCP exchange.
- ☒ **Bandwidth avoidance.** Because the company is able to have a detailed level of analysis about how a specific connection is being used, it is able to eliminate inappropriate or "random" traffic and defer bandwidth updates. The company's vice president of IT reported that "we're saving at least a 10% growth rate by having the additional instrumentation."
- ☒ **Compute cost avoidance.** The vice president of IT explained that Cascade enables the company to avoid "unnecessary" CPU spend. He noted that due to the greater level of analysis provided by Cascade, "I'd probably estimate that we are saving [from having to deploy] something on the order of 75 CPUs per year."
- ☒ **Confidence in network architecture changes.** Now the company can test a routing change and actually know the before and after scenario. For a global organization that relies upon the network, this is a significant value-add.

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