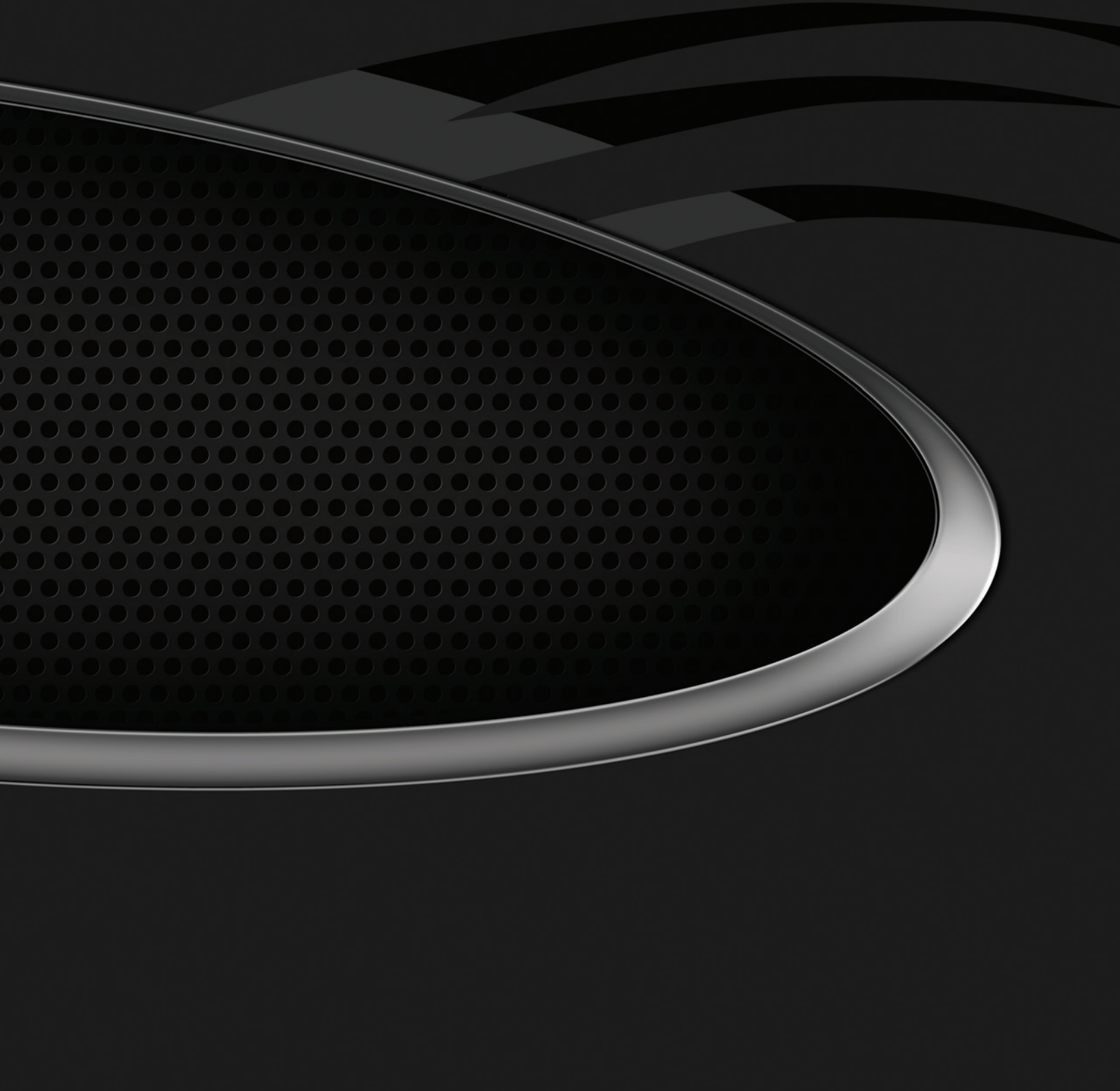


Riverbed[®] Cascade[®]
Product Family



Overview

To deliver IT performance, you need complete visibility. Riverbed Cascade offers a superior network performance management solution for discovering, monitoring and troubleshooting your network and your critical applications. Now you can resolve performance problems before they impact the business, while lowering your IT management costs.

Riverbed Cascade

The Value of Application-Aware Network Performance Management

Managing a corporate network is an increasingly challenging task. You are expected to monitor application performance, maintain security and support corporate IT initiatives. But network complexity, high-bandwidth applications, and new technologies such as cloud computing and WAN optimization are creating visibility gaps. While expectations from the network team have grown, many network management tools fail to provide a full picture of the modern IT environment. As a result, these tools do not enable IT organizations to deliver consistent performance to the business.

Can You Deliver IT Performance?

Do you often hear about IT performance issues from end-users, instead of discovering them yourself? Do these issues result in application outages? Can you quickly identify the source of problems once they occur? Are SLAs being met? Does it take too long to gather information in preparation for IT consolidation projects, data center moves, or cloud deployments?

To deliver the performance that the business needs, you need a network performance management solution that is:

- **Application-aware** – offering an application-oriented view of network traffic
- **Proactive** – alerting you to problems before users call to complain
- **Comprehensive** – providing wide network coverage with deep application information
- **Easy to deploy** – without having to modify your applications or your network

Riverbed Cascade is an enterprise-wide network performance management solution, providing visibility into all your data centers, offices, and mobile users. It uses network flow data, supplemented with packet-based performance metrics, to discover applications and monitor performance. It uses advanced behavioral analytics to track performance over time and alert you to any deviations from normal behavior. That way you can resolve problems before end-users are impacted.

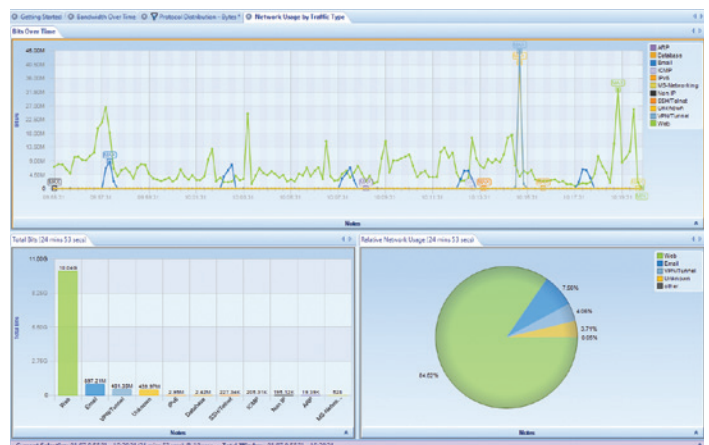
Service Health by Location							
Service Tree ↓	Overall	SAS	Twiki	ERP	Exchange	Oracle	Sharepoint
Seattle	●	●	●	●	●	●	●
San Francisco	●	●	●	●	●	●	●
Phoenix	●	●	●	●	●	●	●
User Experience	●	●	●	●	●	●	●
Efficiency	●	●	●	●	●	●	●
Connectivity	●	●	●	●	●	●	●
Philadelphia	●	●	●	●	●	●	●
Los Angeles	●	●	●	●	●	●	●
Hartford	●	●	●	●	●	●	●
Data Center	●	●	●	●	●	●	●
Columbus	●	●	●	●	●	●	●
Cambridge	●	●	●	●	●	●	●
Austin	●	●	●	●	●	●	●

Cascade executive-level dashboards alerts you to network and application problems.

Cascade provides full packet capture and analysis capabilities, so you can drill down from the high-level application status to traffic flows to packets in order to determine the source of any performance bottlenecks. With a comprehensive view of server, application, and user dependencies, you can resolve current application delivery problems and plan future IT investments.

Typical results include a three-year ROI of 364 percent and a payback period of just 5.5 months. Mean time to resolve IT incidents is reduced by an average of 83 percent, and the duration of help desk calls by 87 percent, according to third-party research*.

Riverbed is leading the convergence of IT performance management and optimization, combining the unique visibility capabilities of Cascade with the WAN optimization benefits and wide deployment of Riverbed Steelhead® products, and giving you a complete solution for understanding, optimizing and consolidating your IT infrastructure.



Powerful, visually-rich packet analysis provides a broad selection of interactive views.

* "Achieving Business Value with Network and Application Visibility", by Lucinda Borovick and Randy Perry, IDC, April 2010

Performance Monitoring and Troubleshooting

Cascade provides executive-level dashboards showing the health of critical services and applications. These dashboards are based on automatic discovery of IT assets, making them easy to set up in a matter of hours. Cascade monitors performance by tracking dozens of key metrics, such as application throughput and response time, and learning the normal behavior of applications on your network through a completely automatic, dynamic model. It even learns automatically which events happen on a daily or weekly basis.

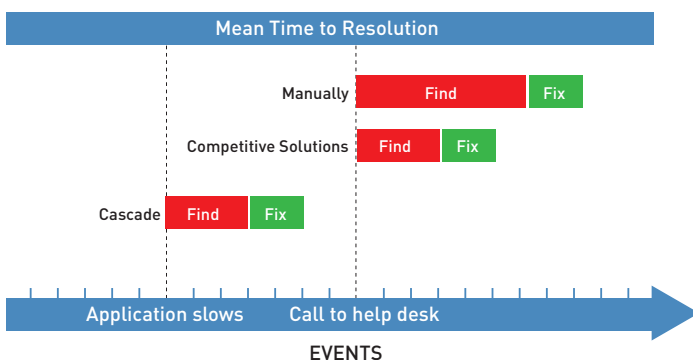
“Riverbed Cascade has given us the end-to-end application visibility not found in our existing tools. I use Cascade frequently to identify and resolve performance and availability issues for infrastructure management and business-critical applications.”

Neil Wasserman, VP of IT, DTCC

Once a key metric goes outside the normal range, Cascade shows it on the dashboard and sends an alert. An administrator can then troubleshoot the problem by drilling down into the performance data with a few simple clicks. Cascade’s business-centric views allow you to easily navigate from interfaces to applications, servers, and users.

For deep troubleshooting, you can drill down further into a broad selection of interactive, packet-based views, based on continuous, line-rate packet capture that indexes packets for high query performance. Cascade is the only solution to be fully integrated with the popular Wireshark® network protocol analyzer for viewing packet information.

With seamless merging of flow and packet based data sources, Cascade allows you to choose how wide and how deep you’d like to monitor your network. In addition, if you’ve deployed Riverbed Steelhead products in your branch offices, you can use them as packet capture and flow export devices for Cascade, so you instantly gain remote site visibility without having to add any hardware in branch offices. Cascade will consistently report application performance across optimized and non-optimized sites.

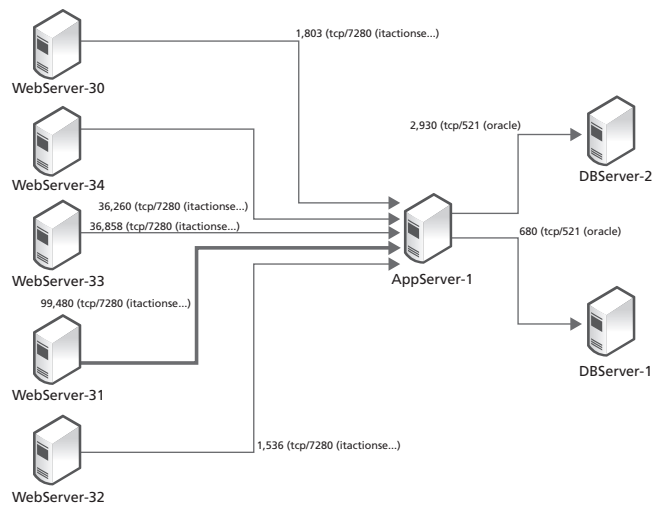


With Riverbed Cascade, you can respond to IT performance problems faster.

Discovery and Dependency Mapping

Major IT projects such as consolidation, disaster recovery and cloud have one thing in common: you first need to find out what is currently running on your network. Whether you’re consolidating a few servers or entire data centers, Cascade gives you a cost-effective way to discover application servers and clients on your network and map the dependencies, without using agents or scanning.

Cascade saves you money because it can discover all systems within hours and show you the impact of your proposed changes. You also save money by moving sooner to your new, lower-cost environment, and getting rid of inefficient or underutilized servers.



Cascade discovery and dependency mapping significantly accelerate your IT projects.

Achieving Security and Compliance

Behavioral analytics and packet-based application analysis can deliver security to your organization, as well as performance. Behavioral changes may reflect worms, unauthorized connections, scanning, and other security threats. An analytics-based approach allows identification of advanced attacks such as zero-day, “boutique” malware and threats from credential insiders. Intrusion detection is key to achieving compliance with regulatory requirements and IT mandates.

“With Cascade, we can provide senior management with information on the IT infrastructure that can help them make better business decisions that save money, resources, and efficiencies. This has elevated our IT group from just providing a utility to contributing meaningfully to the business.”

Christophe Duprat, IT director, International Herald Tribune

How Cascade Works

Cascade collects network flow data from routers, switches, and other devices, and augments it with layer 7 application classification and performance metrics obtained via packet inspection. It uses continuous packet capture for retrospective analysis, and combines flow and packet data into a single data set with seamless top-down navigation. Both flow and packet sources are used to measure performance, identify changes from normal behavior, and generate reports and alerts. Cascade does not use agents or synthetic transactions.

Cascade consists of the following components:

- **Cascade Profiler** – Analyzes network and application performance and sends alerts
- **Cascade Gateway** – Collects flow data, supporting all flow types (NetFlow, sFlow, IPFIX etc.)
- **Cascade Shark** – Captures packets from SPAN ports or taps, and indexes them for fast, efficient analysis
- **Cascade Sensor** – Provides packet-based application classification at layer 7
- **Cascade Pilot** – Packet analysis software for Shark and other packet capture sources

Cascade Gateway, Cascade Shark, Cascade Sensor, and Cascade Profiler are appliances that are sized based on the number of flows per minute, the network interface or the storage capacity. Sensor-VE is deployed as an RSP package on a Steelhead appliance. Cascade Pilot is a desktop software product.

About Riverbed

Riverbed delivers performance for the globally connected enterprise. With Riverbed, enterprises can successfully and intelligently implement strategic initiatives such as virtualization, consolidation, cloud computing, and disaster recovery without fear of compromising performance. By giving enterprises the platform they need to understand, optimize and consolidate their IT, Riverbed helps enterprises to build a fast, fluid and dynamic IT architecture that aligns with the business needs of the organization. Additional information about Riverbed (NASDAQ: RVBD) is available at www.riverbed.com.



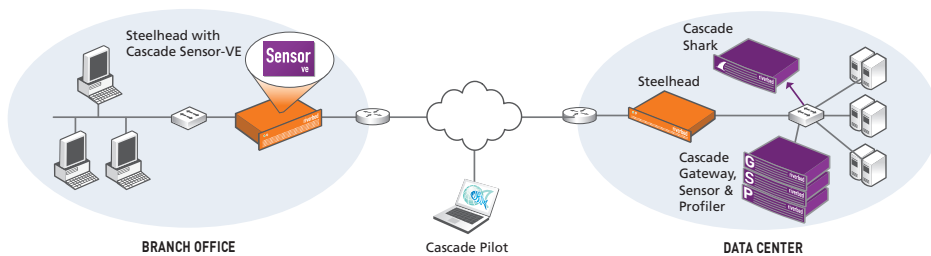
2005, 2006, 2007, 2008, 2009, 2011



KEY BENEFITS

An ROI study of Cascade customers, conducted by IDC in 2010 found a remarkable three-year ROI of 364 percent and a payback period of just 5.5 months. Among the benefits:

- Average annual benefits of \$31,679 per 100 users due to improvements in IT staff productivity, user productivity and other cost reductions.
- Average MTTR was reduced from 12.8 hours to 2.1 hours.
- Average duration of help desk calls was reduced by 87 percent.
- \$53,431 average annual savings on server purchases and \$123,449 average annual savings on tool purchases.
- 34 percent fewer downtime incidents per month; the average incident duration cut by 51 percent.



Cascade components as typically deployed in the data center and branch office.

Want to learn more about Cascade?

Contact Riverbed, the IT performance company, for more information on the products and solutions that are right for you. Thousands of companies world-wide trust Riverbed to achieve cost savings and deliver strategic advantage over the competition. Visit www.riverbed.com for more information.

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