

**IN BRIEF**

**Industry**

- » Education

**Challenges**

- » Rapid growth in network traffic
- » Increasing application complexity
- » Limited network visibility
- » Time-consuming troubleshooting process

**Solution**

- » Riverbed Cascade appliance in the data center

**Benefits**

- » Reduced MTTR for network issues and higher network uptime
- » Better network and application performance management
- » Detailed performance metrics and easy reporting



# Boston College

## Riverbed Cascade Enables Boston College to Stay Ahead of Growing Network Complexity

Founded in 1863 and located in Newton, Massachusetts, Boston College is one of the oldest Jesuit, Catholic universities in the United States. Boston College confers more than 4,000 degrees annually in more than 50 fields of study through nine schools and colleges, and has experienced tremendous growth in recent years, including a 75 percent increase in undergraduate applications over the past decade.

Boston College has implemented a three-tier Gigabit Ethernet network accommodating approximately 15,000 students, faculty, and staff across three physical campuses within a three mile radius. Users are accustomed to a very reliable network. The Boston College data center is located in the former St. Clement's Chapel, featuring 16 stained-glass windows.

### The Challenge: Limited Network Visibility

In recent years Boston College has experienced rapid growth in data center network complexity. This complexity was driven by the need to provide a high level of fault tolerance to new, multi-tiered applications that had large bandwidth requirements. The final design proved to be robust enough to support the University's needs, but it introduced an increased level of complexity to troubleshooting.

One example of this type of application was a three-tiered Web-based portal consisting of front-end Web servers, mid-tiered application servers and backend database servers. For additional fault tolerance, this application was also deployed behind application load-balancer appliances.

As application complexity and network demand were growing, the network team felt it was important to gain more visibility into how applications were performing in order to best serve users' needs. "We were reaching a tipping point with the complexity of some of our applications, where we felt we didn't have a good handle on what was normal application performance and what was an outlier," says Chris O'Brien, Network Systems Engineer. "Understanding our network traffic was what started the discussion around a network and application visibility solution."

When the team was unable to produce sufficient performance metrics about their centralized email system during an outage due to their lack of tools capable of monitoring the volume of traffic, the need for enhanced visibility became clear. It became obvious that Boston College would benefit from a full layer 4-7 performance metrics in the data center and throughout the network, plus dependency maps that show how multi-tiered applications are architected and how network traffic is truly flowing. This enhanced visibility would reduce the MTTR of current network issues and help plan for future growth.

### The Solution: Riverbed Cascade

In the past, the network team used a combination of packet capture and older network management tools to troubleshoot problems. However, that was a reactive approach, requiring them to go to the building where the problem happened, set up packet capture, wait for the problem to happen again, and then look for possible problems in the capture file. This was not only a tedious process that required a great deal of setup to begin looking into a reported problem, but it could also be fruitless if the problem couldn't be regularly reproduced.

The world of network management tools was changing in favor of graphical, easy-to-use tools that aggregate large amounts of information at a high level and understand the relationship between network and servers. After a bakeoff of competing product solutions, and a successful proof of concept trial, Boston College selected Riverbed Cascade as its standard network and application visibility tool.

While evaluating Cascade, O'Brien found its ease of implementation to be a major differentiator. "Cascade was easy to get up and going. It came online quickly and started collecting usable data. Cascade is very user friendly and has an intuitive interface." The team was impressed by other Cascade capabilities, including the baselining of normal behavior, and the search capability, which O'Brien describes as 'very advanced'.

### Benefits: Global Visibility and Accelerated Troubleshooting

Boston College now has Cascade appliances located in the data center collecting flow data from all distribution routers and aggregating that with layer 7 data from data center traffic. This provides visibility into traffic from over 100 buildings across three campuses to the data center and to the Internet. Network health reports are automatically generated and sent daily to IT executives, and performance alerts are sent to the network team.

Cascade provides benefits across several dimensions:

- Reduced MTTR for network connectivity issues
- Increased network uptime
- Better network and application performance management
- Detailed performance metrics for the data center and throughout the network
- Less dependency on packet capture as a troubleshooting tool
- Ease of reporting and interpreting data output
- Powerful search capabilities for network information

Cascade has proven itself many times to be an excellent troubleshooting tool. For example:

- During a troubleshooting session with an offsite Web application vendor, the Boston College team was able to pinpoint the problem in minutes, rather than hours as would have been the case with alternative approaches.
- When wireless access points were incorrectly applying EF (Expedite Forwarding) QoS tags to non-voice traffic, potentially degrading the quality of VOIP calls, Cascade was the first product that discovered the problem.
- When the campus police called to report that the network was down, Cascade correctly identified the problem as an application rather than a network problem.

"Cascade is the first place we go when we get a call from a user," says Ann Murphy (Associate Director, Network Systems) / Joe Harrington (Director, Network Services). "We now have a much more effective network management process, and can quickly determine where a problem is in the network and what applications or services are being impacted by it. Our goal is to be in an increasingly proactive mode where we know about network and application problems before the user reports them."

### About Riverbed

Riverbed Technology is the IT performance company. The Riverbed family of wide area network (WAN) optimization solutions liberates businesses from common IT constraints by increasing application performance, enabling consolidation, and providing enterprise-wide network and application visibility – all while eliminating the need to increase bandwidth, storage or servers. Thousands of companies with distributed operations use Riverbed to make their IT infrastructure faster, less expensive and more responsive. Additional information about Riverbed (NASDAQ: RVBD) is available at [www.riverbed.com](http://www.riverbed.com).



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