



## CASE STUDY

# Education Management Corporation ::

**Using NetQoS ReporterAnalyzer and SuperAgent to Improve Application Performance, Validate SLAs, and Achieve Cost Savings**

**Industry:** Higher Education

**“The performance of our critical applications has improved without question. We used to get daily performance complaint calls. Now we are getting comments about how good the performance is.”**

- Martin Kowalewski, EDMC Senior Network Analyst

### **EDMC Challenges:**

- » Troubleshooting poor application performance with few tools to determine or verify cause
- » Reducing non-critical Web traffic
- » Migrating to MPLS with few tools to do capacity planning, gain visibility into traffic or verify performance
- » Validating SLAs with its carrier

### **EDMC Results Using NetQoS:**

- » Improving application performance
- » Achieving bandwidth cost savings of 20 to 30%
- » Troubleshooting issues faster and more efficiently
- » Identifying opportunity to save \$15,000 per month via network consolidation
- » Verifying Service Level Agreements and VoIP deployments with MPLS migrations

## Background:

### Education Management Corporation

Education Management Corporation (EDMC) is among the largest providers of private post-secondary education in North America, with more than 72,000 students as of fall 2005, at 71 primary campus locations in 24 states and two Canadian provinces. EDMC's education institutions offer a broad range of academic programs in the media arts, design, fashion, culinary arts, behavioral sciences, health sciences, education, information technology and business, culminating in the award of associates through doctoral degrees.

## Challenge:

### Addressing Performance Problems with Limited Network Visibility

EDMC's three-person network staff is responsible for delivering Internet services and administrative applications such as financial, Exchange e-mail, multiple student systems, and external Web links to services such as the library and student bookstore.

The network team often dealt with complaints about poor application performance at EDMC's sites. With such a large student population, the network team knew that recreational Internet use such as music and video downloads, VoIP usage, and online gaming was probably responsible for traffic slowdowns. However, they did not have the ability to verify this. The team believed that offloading its non-critical Internet traffic to a co-location facility would improve performance, but without the data to back it up, they could not justify the cost of moving traffic away from the core.

In addition, as EDMC moved to an MPLS environment, the network team needed a tool to help plan bandwidth requirements, gain visibility into the traffic, and verify the performance its carrier was delivering.

## Solution:

### NetQoS ReporterAnalyzer™ and SuperAgent®

EDMC chose NetQoS ReporterAnalyzer to gain visibility into its WAN traffic and NetQoS SuperAgent to monitor how its applications are performing. ReporterAnalyzer and SuperAgent are modules of the NetQoS Performance Center, a Web-based management portal that integrates data from NetQoS' products in customized views to help enterprises be more effective in capacity planning, troubleshooting, and service level management.

## Results:

### Network Knowledge Is Power to Improve Performance

#### Justifying a Co-Location Facility to Make Performance Improvements

NetQoS ReporterAnalyzer has helped EDMC solve the problem of application performance at the core. Using ReporterAnalyzer, the network team verified that a high percentage of its Web traffic was non business related. In fact, ReporterAnalyzer showed that 80 to 90 percent of the traffic was recreational Web traffic generated by the students. The network team now had the data to justify outsourcing EDMC's Web traffic to a third-party data center to free up bandwidth on their own network. ReporterAnalyzer also helped estimate how much bandwidth they would need to purchase to offload traffic to the co-location facility.

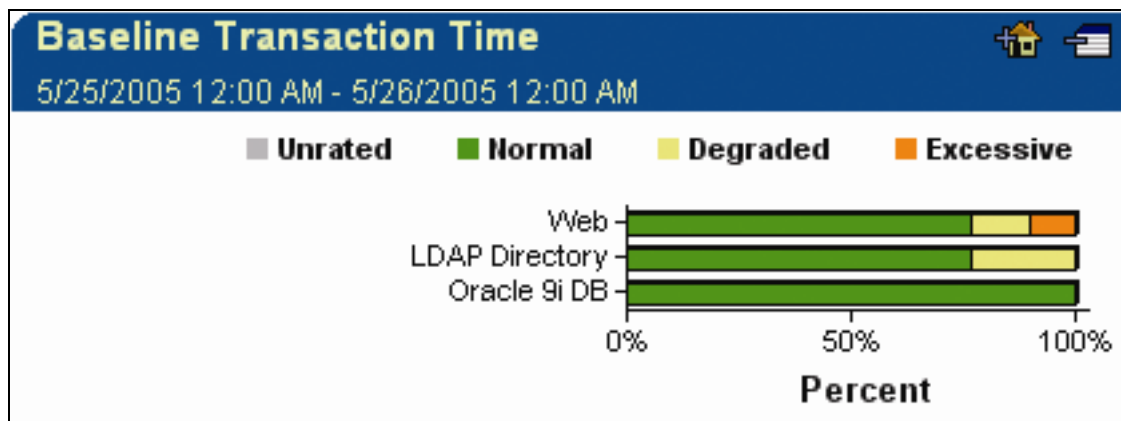
#### Reasons for Deploying NetQoS ReporterAnalyzer:

- » **Visibility into all network traffic, including MPLS:** With a small staff, the network group appreciated a tool that provides 100 percent visibility into wide area network traffic, showing which applications and users are using bandwidth across all locations.
- » **Ease and accuracy of capacity planning:** To help EDMC with several network changes, ReporterAnalyzer facilitates proactive management of the network by identifying when traffic has exceeded a defined threshold. ReporterAnalyzer helps EDMC evaluate the need for increasing network capacity by identifying bandwidth requirements of all protocols, hosts, and conversations on the network.
- » **Passive monitoring without probes:** EDMC wanted visibility into its network traffic without having to deploy probes, an expensive solution that requires heavy maintenance. ReporterAnalyzer uses the existing router and switch infrastructure by reporting on Cisco IOS® NetFlow statistics.
- » **Leveraging the existing Cisco infrastructure:** EDMC utilizes Cisco routers at each site, so the ability to use NetFlow was an advantage. All EDMC had to do was simply turn on NetFlow on a few key routers and switches to gain visibility into enterprise-wide traffic.

#### Reasons for Deploying NetQoS SuperAgent:

- » **Monitoring application performance:** SuperAgent measures and reports on the response time for all end users when accessing key enterprise applications, so EDMC can understand how each application is performing.
- » **Rapid troubleshooting of performance bottlenecks:** SuperAgent separates response time into network, server, and application delay components for faster troubleshooting.
- » **Passive, agentless monitoring reduces maintenance burden:** Instead of using desktop or server agents—an ongoing management burden—SuperAgent uses the existing switch infrastructure to collect response time statistics.

» **Service level agreement measurement:** With its baseline measurements, SuperAgent enables EDMC to monitor its internal and external service level agreements and report on service quality.



Sample NetQoS ReporterAnalyzer and SuperAgent data reports

Now that non-critical Web traffic is hosted by a third-party data center, key applications are being delivered faster from the EDMC data center. ReporterAnalyzer is showing that Web traffic going through the core is down 40 to 50 percent.

NetQoS SuperAgent helped validate the decision to offload traffic to the co-location facility by documenting performance improvements in key applications.

“The performance of our critical applications has improved without question,” said Martin Kowalewski, EDMC Senior Network Analyst. “We used to get daily performance complaint calls. Now we are getting comments about how good the performance is.”

### **Quantifying the Business Case for Cache Boxes**

With the co-location facility engaged, EDMC's network group is now using ReporterAnalyzer to help reduce its cost by quantifying the business case for installing cache boxes at remote sites. Network caching is the technique used to keep frequently accessed information in a location close to the requester. A Web cache stores Web pages and content on a storage device that is physically or logically closer to the user, making it faster than a Web lookup. By reducing the amount of traffic on WAN links, caching can provide significant cost savings due to WAN bandwidth reduction.\*

\*Source: Cisco Systems Internetworking Technologies Handbook

By identifying the percentages of HTTP traffic on WAN links before and after a cache box deployment, ReporterAnalyzer is able to validate that the traffic to the co-location site is decreasing. EDMC's pilot program across several sites shows that they have achieved 20 to 30 percent bandwidth savings so far.

### **Troubleshooting Remote Site Issues**

When recreational Internet use does cause slowdowns at remote sites, ReporterAnalyzer isolates the problem to the switch port and workstation. Whether it is peer-to-peer file sharing of music or uploading the latest movie trailer, ReporterAnalyzer can alert the network team to the cause of the problem. In turn, the network team can communicate the problem to the director of technology at each school.

In fact, ReporterAnalyzer has given the IT organizations at each site the ability to create their own views into their interfaces. Since ReporterAnalyzer is permissions-based, the IT personnel only see the interfaces at their sites. [According to Derek Fink, EDMC's Assistant Vice President, Networks and Communications:](#) “NetQoS ReporterAnalyzer's ability to customize user permissions at each site has helped decrease the load on the corporate staff. Each site is using it to identify utilization and be more proactive in performance monitoring and troubleshooting.”

### **Consolidating Networks with the Potential to Save \$15,000 Per Month**

EDMC is using voice over IP for system to system communications at four sites. ReporterAnalyzer showed that connecting via the VPN directly to each site was not a viable failover technique for VoIP. EDMC identified an opportunity to not only solve the problem but also potentially save \$15,000 per month by migrating VoIP to MPLS. SuperAgent is showing that critical applications are performing the same or better as VoIP is being deployed across MPLS for several sites.

## **Monitoring Key Applications**

EDMC is using SuperAgent to track performance of its key applications, including its Student Information System's internal and external portal used by all schools for grades, registration, payments, and other critical information. Because SuperAgent isolates problems to the network, server or application, EDMC's operations group is now using it to reduce tickets sent to the network engineers. This has made troubleshooting across IT departments more efficient and has freed up the network engineers to deal with true network issues.

## **Verifying Service Level Agreement Compliance and VoIP Deployments with MPLS Migrations**

EDMC is also using NetQoS Performance Center to validate its service level agreements (SLAs) with its MPLS provider, which include SLAs for network latency, enterprise-wide VoIP traffic, response times, and delay. NetQoS has given EDMC the data to verify the performance its MPLS provider is delivering and to fine-tune some of the SLAs. Because NetQoS has enabled EDMC to monitor the SLAs accurately, they are renegotiating their contracts with help from data provided by the NetQoS Performance Center's integrated performance management views.

## About NetQoS Performance Center

The NetQoS Performance Center unlocks the intelligence needed to quantify network and application performance across an entire organization with end-to-end application response time monitoring, network traffic analysis, device performance management, long-term packet capture and analysis, and VoIP performance monitoring. Via a single Web-based management console, the NetQoS Performance Center integrates the data in customized views to help organizations optimize application delivery, solve problems faster, mitigate the risks from change, and make the most efficient use of resources. With role-specific views for different groups in an IT organization, such as network engineering, operations, IT service managers, and IP telephony management, the NetQoS Performance Center enables staff at all levels to:

- Measure end-user application response times
- Provide consistent application service delivery
- Understand how infrastructure changes affect network and application performance
- Isolate performance problems to the application, server, or network
- Identify the applications and users consuming bandwidth, and when
- Avoid unnecessary WAN costs
- Correlate network performance to VoIP call quality of experience
- Manage the convergence of voice, video and data
- Identify virus or denial of service attacks and unauthorized application usage

## About NetQoS ReporterAnalyzer

NetQoS ReporterAnalyzer provides global visibility into wide area network traffic, enabling an understanding of how application traffic is impacting network performance. ReporterAnalyzer captures a rich set of traffic statistics from Cisco IOS NetFlow enabled routers and switches to identify which applications and users are using bandwidth, and when, allowing network managers and engineers to make informed decisions in troubleshooting and capacity planning. ReporterAnalyzer handles the volume of NetFlow data typical in the world's largest networks, providing real-time visibility into 100 percent of enterprise-wide network traffic and access to a full year's worth of detailed data.

## About NetQoS SuperAgent

NetQoS SuperAgent measures end-to-end application response time without endpoint agents, giving IT and executive staff vision into how business applications are performing for end users companywide. SuperAgent separates response time into network, server, and application delay components and launches automatic investigations into problems, enabling rapid troubleshooting of performance bottlenecks. SuperAgent also measures the impact of infrastructure changes and reports on service level agreement compliance to document consistent levels of service quality for internal users and for external service providers.

To learn more about NetQoS network performance management products, please visit [www.netqos.com](http://www.netqos.com).

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