

***A Note to Readers from the Communications & Planning Division
of the LSU Office of the CIO:***

Allot Communications has nominated LSU for the Network World Enterprise Allstars Award, and has included the article below highlighting our use of the Net Enforcer product in managing bandwidth day-to-day as well as during the aftermath of Hurricane Katrina.



University Case Study: Louisiana State University

School Curbs Bandwidth Use, Supports Emergency Hurricane Communications

Chapter 16 described the unique set of problems encountered by network administrators in educational environments. This chapter will move the traffic management discussion from the theoretical to the practical by taking a look at a university production environment.

Louisiana State University in Baton Rouge, La., deployed a traffic management system to control peer-to-peer (P2P) application use by students that was bogging down the network with unprecedented bandwidth consumption. More recently, the university was called upon to provide guaranteed communications to emergency responders during Hurricane Katrina. The university used an Allot Communications NetEnforcer traffic management system to address both situations.

“More Bandwidth, Please!”

When its computer-savvy students returned to school in the fall of 2001, LSU found itself subject to a huge demand for more bandwidth. The network administrator strongly suspected

that the unprecedented drain on existing bandwidth came from the students using the latest in P2P applications. But that suspicion was difficult to prove.

So LSU increased its Internet access bandwidth from 24 to 45 Mbps. But the additional capacity was instantly consumed, said Terry Doub, director of the LSU network operation center. The obvious solution seemed to add still more bandwidth. That next spring LSU moved to 62 Mbps, and in July upgraded yet again—to a blazing 155 Mbps.

The upgrades represented an increase of 130 Mbps in less than 16 months. Mystifyingly, however, after these repeated upgrades and expenditures, the network was just as clogged—if not more so—than it was a year earlier. Doub noted that the nominal bandwidth management available by manually tweaking routers was “a time-intensive and mistake-prone activity.”

Unmasking the Culprit

Faced with the budgetary impossibility of adding still more bandwidth that users would quickly consume, LSU started to evaluate bandwidth management tools. After reviewing numerous options from a variety of vendors, Doub decided on a test evaluation of Allot Communications' 155-Mbps NetEnforcer AC701. Deep packet inspection–based monitoring with the NetEnforcer definitively revealed the culprit to be P2P applications in use by the student population. From there, Doub set up rules to limit P2P traffic and block P2P uploads to outside recipients to stem the runaway bandwidth consumption.

The results were dramatic.

“After installing the NetEnforcer evaluation unit, the impact was immediate—and when the trial period was over, we didn't let them take the unit out,” said Doub.

The university upgraded to the NetEnforcer AC1000, Allot Communications' gigabit-speed product, as soon as it was available for future-proofing. Doub is able to shape the network traffic by allocating IP addresses to three basic groups of users: students, faculty, and staff. Different rules apply to these groups for the purpose of controlling network traffic. The students are free to use P2P, but have limits on the amount of bandwidth available to them. For liability reasons, the system blocks students from sending P2P files to users outside the university system. The other two groups, faculty and staff, cannot use P2P applications at all.

No More Upgrades

LSU has not added bandwidth since installing the NetEnforcer; in other words, the traffic

management system has virtually eliminated the need for bandwidth increases at the university. The device has allowed Doub to shape and control the network quickly and easily, adapting it to transient contingencies while continuing to fully support core application performance requirements.

Visibility into network behavior is the key to both bandwidth management and troubleshooting network problems. For example, recently Doub was able to track and detect misuse on the network by isolating a particular network pipe and allowing only the suspected offender's traffic to travel over that link. The NetEnforcer allowed him to detect and document the network abuse and terminate the offending traffic quickly.

Reallocating Resources during Katrina

Besides benefiting from the control and network insight provided by the NetEnforcer, Doub has found the solution to be particularly adaptable to contingency needs. A case in point: NetEnforcer enabled LSU not only to manage its own resources, but also to extend its network resources during Hurricane Katrina, a time of U.S. national crisis.

"For hurricane season, we guaranteed bandwidth for data for the Southern Regional Climate Center, which was tied into the National Hurricane Center in Miami," explained Doub. Following Hurricane Katrina's devastating effects on New Orleans and other parts of the Gulf Coast, LSU was called upon to house support personnel for the U.S. Federal Emergency Management Agency (FEMA) and the U.S. Army. It also provided Internet access to these personnel at a time when basic communications infrastructure had become all but nonexistent.

Doub had to act fast to meet the emergency needs. The adaptability and flexibility made possible by the NetEnforcer allowed Doub and his team to set up temporary services for FEMA and the army with incredible speed.

"Within literally minutes, we had a guaranteed pipe established for them off campus," said Doub. Using NetEnforcer policy enforcement capabilities, Doub was also able to ensure that the university, FEMA, and army services didn't interfere with one another.

NetEnforcer At-A-Glance

Allot's NetEnforcer offers educational institutions distinct business and technical advantages:

- **Increased control of network performance**

- **Detailed monitoring and accounting**
- **Denial of service (DoS) protection**
- **Recovery of lost bandwidth**
- **Diagnostic problem solving**

Chapter Summary

For better or worse, today's technically sophisticated student population poses new challenges for network administrators, especially the need to control P2P and other bandwidth-hungry applications. Rather than adding bandwidth, which is costly and does not guarantee successful resolution to the problem, network monitoring and control using a traffic manager such as Allot's NetEnforcer provides a cost-effective and adaptable solution.

Traffic management allows educational institutions to control and shape traffic by assigning bandwidth based on IP addresses, thereby controlling network usage and guaranteeing resources to mission-critical applications and users, such as faculty and staff. The solution has enabled Louisiana State University to avoid bandwidth increases for nearly four years.

Additionally, traffic management allows network administrators to track usage and thwart network misuse by discovering problems through deep packet inspection. Network administrators can also use the system to set up new networks quickly and easily when unexpected contingencies arise, such as those faced by LSU in the aftermath of Hurricane Katrina.

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For More Information

For more information, please visit Allot Communications, the Traffic Management Company, at <http://www.allot.com>.

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