



FOUNDRY
NETWORKS

CASE STUDY: KEENE STATE COLLEGE

New England College Gets an Advanced Degree in Networking

Keene State College

SUMMARY

Keene State College (KSC), located in the quiet, picturesque Monadnock region of New Hampshire, is a bustling academic community of more than 5,000 students from more than 20 countries and 27 states. The liberal arts college employs approximately 1,000 faculty and staff members, and it offers Associate, Bachelor's and Master's degrees in many different disciplines ranging from the arts and sciences to education.

The college, which will celebrate its 100th anniversary in 2009, is committed to academic excellence, and it challenges students to develop the habits of mind and character that prepare them for productive lives and work. This dynamic institution opens students' lives to a world of possibilities.

OBJECTIVE

After years of troubleshooting and creating workarounds for the college's network, KCS decided to replace its aging networking infrastructure. The older equipment was unreliable and difficult to support, and in some scenarios, it simply wouldn't stay up and running. To support the college's future networking plans, KCS wanted to deploy high-end, proven networking technology that would help the college keep pace with the educational community's needs.

A primary concern was finding a solid network foundation that would scale as the college expanded. The KCS IT staff began searching for networking solutions that offered reliable Ethernet performance, flexible configuration options, iron-clad security, trouble-free centralized management, and end-to-end visibility.

SOLUTION

After evaluating several network equipment vendors, KCS selected Foundry Networks to help implement a four-year plan that will involve upgrading and replacing all existing network equipment. Due to the size and complexity of the KCS network, the IT staff wanted to deploy infrastructure from a single vendor. Based on that decision, all future technology and facilities projects that require LAN changes or upgrades will include Foundry networking solutions.

"Our strategy is to deploy networking equipment from one vendor from end-to-end," says Gregory R. Scholz, Director of Telecommunications in KSC's Information Technology Group. "Deploying only Foundry equipment allows us to leverage Foundry's technological strengths."

KCS has replaced about 80 Nortel 24-port switches with 40 Foundry FastIron® GS Series compact switches. When the KSC network upgrade is complete, it will also include FastIron® SuperX and FastIron Edge Series switches that feature high-performance, Layer 2/Layer 3 capabilities, built-in power-over-Ethernet support, and the ability to deliver reliable and secure Ethernet and IP services.

On the management side, Foundry's IronView® Network Management platform gives KSC a centralized view of the entire network architecture.

[HTTP://WWW.KEENE.EDU/](http://www.keene.edu/)

INDUSTRY

Higher Education

COMPANY DESCRIPTION

Keene State College (KSC), located in Keene, NH, is a liberal arts college founded in 1909 with a total student enrollment of over 5,000 and almost 100 faculty and staff. KSC offers Associates, Bachelor's, and Master's degrees in a variety of majors encompassing arts, science, and education.

OBJECTIVE

- Upgrade an existing network that consisted mostly of 100 Mbps Ethernet running over Category 3 cabling to a network that can support gigabit speeds
- Gain better network visibility to get a clearer picture of overall network service
- Introduce management and security features that will help the IT team administer and maintain the network

SOLUTION

- Foundry FastIron GS, SuperX, and FastIron Edge switches will replace existing network equipment over a four-year, multi-phase implementation
- Foundry IronView Network Management platform provides a centralized network view and helps secure the network

RESULTS

- Scalable network architecture can support 10/100/1000 Mbps, making it easy to upgrade links in the future
- sFlow and Foundry's IronView Network Management provide full network visibility and intrusion detection protection
- Batch update capability simplifies the process for changing switch settings and configurations

The Foundry-based network supports multiple applications. Students can send instant messages, check Web-based email, play games, track campus information through a student portal, and view instructional material on an academic blackboard. The network also supports a host of non-student, business-related applications including applications such as video streaming that demand reliable quality-of-service functionality.

RESULTS

Like many public centers of higher learning, KSC is sometimes limited by its existing wired infrastructure. Most of the student housing, where almost one-half of the student population resides, is wired with Category 3 cabling, which has a standard data rate of 10 Mbps. KCS intends to increase the data capacity in the future by moving to Category 6 cabling.

As students push for higher bandwidth capacity and the college deploys new cabling, the KCS network will be prepared. Switch features such as flexible auto negotiation allow Scholz to set a standard configuration for all student housing to auto-negotiate to 10 Mbps, full duplex. When the cabling is upgraded, he can easily adjust the configuration and increase the students' bandwidth capacity.

When bandwidth demands increase, Scholz can easily upgrade the switches on the edge. "For the uplinks, I needed equipment that could support both 100 Mbps and gigabit speeds," he says. "With Foundry, I can upgrade from 100 Mbps to gigabit without replacing the switch. I can upgrade by simply adding a module."

Scholz also plans to enhance the network's security through Foundry equipment. Foundry's IronView Network Management (INM) system, which integrates with sFlow, will provide robust intrusion detection for the network. The Foundry deployment will protect the college's network against denial-of-service and man-in-the-middle attacks.

KCS will implement additional security features, such as the IP source guard, dynamic Address Resolution Protocol (ARP) inspection, and DHCP snooping to shield the enterprise from internal and external threats. If a client is assigned an IP address via DHCP, the switch can enforce that assignment by blocking any packets sent from the client's port claiming to be from a different IP addresses. These features will help the IT team prevent students from introducing personal, non-standard, networking equipment.

Scholz is taking further protective measures by isolating student traffic from other network traffic. He moves student traffic through a DMZ before it enters the network and proceeds out to the Internet. "Rather than build two complete infrastructures, one for student residential traffic and another for academic functions, we chose to use the equipment to logically separate the traffic so we can control student access to resources," he says.

Another key issue for Scholz is network visibility. Knowing exactly what is happening throughout the network allows Scholz to maintain a high-performance network. By using sFlow, Scholz and his team can receive a clear picture of network activity throughout the campus. "As we upgrade the edge switches, we need to be aware of bottlenecks that could cripple portions of the network. sFlow helps me get an overall view of network performance, and it helps me make decisions about which portions of the network need tuning," he says.

One management feature that particularly pleases Scholz is batch updates. Scholz admits that initially he was skeptical about centralized management. He had heard lots of talk about the concept but no real-world example. "Foundry proves that it works." Scholz uses the update capabilities to push software out to hardware devices to make any modifications to the configuration. "If we want to make changes to a group of ports or switches, we can push the configuration update to only that group or segments," he says.

Going forward, KCS will continue to rely on Foundry's sales and technical staff to help the college improve the network and add advanced networking technology. "The Foundry team has been very responsive to our questions and diligent in meeting our needs," he says. "Foundry is a strategic IT partner that we rely on to help us maintain a first-class network."

" AS WE UPGRADE THE EDGE SWITCHES, WE NEED TO BE AWARE OF BOTTLENECKS THAT COULD CRIPPLE PORTIONS OF THE NETWORK. sFLOW HELPS ME GET AN OVERALL VIEW OF NETWORK PERFORMANCE, AND IT HELPS ME MAKE DECISIONS ABOUT WHICH PORTIONS OF THE NETWORK NEED TUNING. "

— Gregory R. Scholz
Director of Telecommunications
Information Technology Group
Keene State College

FOUNDRY NETWORKS

©2006 Foundry Networks. All rights reserved. Foundry Networks is a registered trademark of Foundry. All other trademarks are the property of their respective owners.

Foundry Networks, Inc. (Nasdaq: FDRY) is a leading provider of high-performance enterprise and service provider switching, routing and Web traffic management solutions including Layer 2/3 LAN switches, Layer 3 Backbone switches, Layer 4-7 Web switches, wireless LAN and access points, access routers and Metro routers. Foundry's 10,000 customers include the world's premier ISPs, Metro service providers, and enterprises including e-commerce sites, universities, entertainment, healthcare, government, financial, and manufacturing companies. For more information about the company and its products, call 1.888.TURBOLAN or visit www.foundrynetworks.com.



FOUNDRY
NETWORKS