

UNIVERSITY OF NORTHERN IOWA

Enterasys Provides University with Increased Network Control and Ability to Better Support BYOD Initiative



Introduction

The University of Northern Iowa (UNI) boasts numerous awards and accolades for its high educational standards. To maintain this level of excellence requires continual upgrades to the University's infrastructure to meet student and faculty needs. One of the most critical upgrades required by higher education institutions is updating its network to meet the bandwidth demands of today's devices and applications for Bring Your Own Device (BYOD) environments. The following case study examines how UNI's IT department deployed Enterasys networking solutions to provide its 10 residence halls with a Gigabit network that could support the students' existing and future wireless bandwidth needs.

Challenge

With over 4,600 students living in UNI's 10 residence halls, having access to reliable and fast internet connectivity is paramount. However, the 10 megabit network that had been servicing the residence halls for the past 10 years was not capable of supporting the students' bandwidth-hungry applications. As a result, UNI network administrators were constantly writing custom code to solve network issues as a single device could interrupt connectivity for an entire building. In fact, several UNI employees were solely dedicated to the task of writing tools to keep the network functional.

"Residence halls demand service 24 hours a day, and with our outdated network, we spent a lot of time having to write custom code and getting our hands dirty solving problems," said Aaron Howard, computer network systems manager for UNI. "UNI's residence halls needed to provide a reliable network to stay competitive with the off-campus housing options for students."

Selection Criteria

UNI needed a highly reliable switching infrastructure that could handle the demands for secure, predictable network access and service their dynamic and demanding audience. With an obvious need for a network refresh, UNI network administrators began searching for a Gigabit network that could support the students' existing and future wireless bandwidth needs. In addition to maintaining a high degree of accessibility and flexibility for students, faculty, and staff, they had to safeguard student privacy and the integrity of the institution's resources. To select the right solution, UNI began evaluating various providers that could meet the following criteria:

- Powerful flow-based switching infrastructure
- Robust network management software

CASE STUDY

University Stats:

- Networking IT Staff: 3
- Students: 13,000, Faculty/Staff: 2,000
- Locations: 1 centrally-managed campus and 65 buildings

Industry:

- Higher Education

Challenges:

- Replace legacy network
- Gain network control and visibility in a bring-your-own-device (BYOD) environment
- Provide reliable 24x7 network services to students

Products Utilized:

- K-Series Switches
- NetSight management software
- Network Access Control (NAC)

Results:

- Dynamic, policy-based network access control
- Higher quality network connection and enhanced user experience
- Seamless multi-vendor data network

- The ability to seamlessly integrate with a heterogeneous networking environment
- Built-in security
- Superior customer service

Enterasys Solution

After evaluating numerous solution providers, UNI decided to implement an Enterasys OneFabric Edge solution, with 43 Enterasys K-Series 10-slot chassis, two Enterasys S-Series standalone (SSA) system modular switches, and Enterasys NetSight management and Network Access Control (NAC) software to centrally manage and monitor the network, providing improved visibility and control.

Powerful Switching Infrastructure

The modular K-Series Ethernet Switches were deployed at the access edge, where they provide the port density, scalability, and performance needed to meet the university's current and future availability requirements. The K-Series high density, small form factor chassis provides up to 216 Gigabit ports with eight 10 GB uplinks in a standard rack, significantly reducing footprint costs.

According to Howard, "the compact, efficient form factor of the K-Series switches is especially important to us. We've got 21 network closet locations in 11 different buildings and don't have a lot of extra room, so the space that the K-Series switches saved was a definite plus for us."

Designed to address the challenges associated with a growing demand for access to new applications and services, the K-Series protects network traffic and supports the university's changing operational needs. This includes the consumerization of IT and BYOD programs that require more robust location, identification visibility and overall management capabilities. The K-Series is uniquely suited to intelligently manage individual user, device and application conversations, as well as to provide the visibility and management to troubleshoot connectivity issues, locate devices, and ensure the protection of data.

"With students bringing their own devices, we need to ensure these devices comply with our security policies without requiring the user to load software, which could potentially cause harm or implicate us in supporting it," said Howard. "Since the Enterasys switches automatically detect, profile and track any end system and user on the infrastructure, we can ensure devices are not only protected from security threats, but also have the latest patches and drivers to protect us from misconfigured or infected devices."

The university also used the S-Series Stand Alone (SSA) system, a fixed configuration switch with 48 ports of Triple Speed Ethernet or 48 ports of Gigabit, as reinforcement points for the network access and wireless controllers.

The Enterasys modular switches collect NetFlow data at wire-speed providing total visibility into network resource consumption for users and applications. Both the S-Series and the K-Series, support multi-user, multi-method authentication on every port — absolutely essential when you have devices such as IP phones, computers, printers, copiers, security cameras, badge readers, and virtual machines connected to the network.

Muti-user authentication and policy deliver significant benefits to the university by extending security services to users connected to unmanaged devices, third party switches/routers, VPN concentrators, or wireless LAN access points at the edge of their network. Using authentication provides security, priority, and bandwidth control while protecting existing network investments. The S-Series supports up to 9,000 concurrently authenticated users in a single system.

"With its flow-based granularity the K-Series and S-Series switches give us in-depth discovery and prioritization of users and applications," said Howard. "We have thousands of students connecting with their personal devices everyday so we really need to know about what's happening on the network. The Enterasys switches give us all the information we need and more. It's really impressive."

Robust Network Management

Central to the decision making process was a network management solution that would allow administrators to dynamically control network access based on the changing needs of the network and the university's policies.

"During our evaluating process, we looked at the network management tools from a variety of vendors... but at the end of the day, NetSight was a more mature and feature-rich product that would allow us to do more with less staff and less effort," said Howard. "Since the deployment of our Enterasys upgrade, we don't need to devote an employee to writing tools to monitor the network and the students have enjoyed more reliable connectivity and consistent performance."

Managing a Multi-Vendor Environment

As UNI is a multi-vendor environment, the IT department needed to select a solution that could support and integrate a variety of switches to optimize the efficiency of network operations and reduce total cost of ownership. Enterasys NetSight provided centralized visibility and granular control over UNI's entire network — regardless of how many moves, adds or changes occur in their environment.

"Managing a multi-vendor environment is a one of Enterasys' strong suits," said Howard. "In the past, we developed our own process of computer registration, but now, we can manage beyond Enterasys switching, routing and wireless hardware to deliver standards-based control of other vendors' network equipment. Our existing investment in third-party devices is supported and protected."

Built-in Security

Operating a University network involves compliance to rigorous policies to ensure the security of the network. Without appropriate network tools that provide complete network visibility along with proactive prevention capabilities, UNI was forced to operate in reactive mode after attacks have occurred — a very dangerous proposition. UNI knew that merely adding security products would increase infrastructure cost and complexity without necessarily improving network security. In order to effectively manage and protect their networks, IT needed built-in, end-to-end, network visibility and control.

UNI combined its Enterasys switches with Enterasys NAC to take advantage of their embedded network security capabilities. Built upon the Enterasys CoreFlow2 custom ASIC, the K-Series and S-Series switches use this cornerstone switching technology to provide UNI with the ability to automatically control network activity.

The explosion of end systems on the university network intensifies the challenge to inventory all the devices, determine if any device is potentially dangerous and provide appropriate, policy driven access. Enterasys NAC provides extensive end-system profiling and control discovering all endpoints on the network and cataloging over forty five attributes per end system including connected port, assigned role, user identity, last assessment and security status. The number one choice for guest access control, providing unified wired/wireless access policy based control for all non-employees, Enterasys NAC is fully integrated without additional appliances or components to purchase and maintain.

Superior Customer Service

As UNI hasn't experienced an IT overhaul of this size for over 10 years, selecting a company that could provide extensive support during the implementation of the new networking solution was paramount. Plus, with 13,000 students flooding the campus at the start of fall semester, the IT department was under a tight deadline to ensure a functional network system before the end of the summer. Enterasys and UNI achieved their goal of installing and configuring the entire system by August 10 with little downtime to existing staff.

"I must say that I'm extremely impressed with the Enterasys supply chain, management and their ability to deliver on time. I know a lot of people at Enterasys did a great job planning and coordinating to make this happen," said Howard.

Results

Since the network upgrade, Howard and his team have significantly reduced the amount of man hours that was previously required to keep the old network functional. The Enterasys solutions provide UNI with a high-quality, reliable and secure network that not only services students' current bandwidth demands, but can keep up with emerging technical and academic needs.

"The support from Enterasys is phenomenal. We truly feel like we're more than a customer – that we're a trusted advisor. Enterasys really wants to know what we need from their products, and in many cases, has implemented those changes," said Howard. "Enterasys has a reputation of keeping their customers, and from our experience with our network upgrade, it's obvious to us how they've gained this reputation."

WANT TO LEARN MORE?

For more information, call Enterasys Networks toll free at **1-877-801-7082**, or +1-978-684-1000 and visit us on the Web at enterasys.com



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