



## CASE STUDY: COLORADO COLLEGE

### Colorado College Teams with Foundry and Bradford Networks.



COLORADO COLLEGE  
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#### SUMMARY

A private, four-year liberal arts college, Colorado College is located on a 90-acre campus in downtown Colorado Springs. Near the base of Pikes Peak and about an hour from Denver, the college is consistently ranked in the top tier by *U.S. News & World Report* for its academic excellence. Colorado College is best known for its innovative Block Plan, where students take, and professors teach, only one course at a time. Coming from every state in the nation and more than 25 countries, Colorado College students are independent-minded adventurers who love a challenge.

The network and systems group responsible for managing the college's network faced challenges from an outmoded infrastructure. Running on gear that had been installed for more than ten years, the college's shared hub infrastructure wasn't just increasingly unmanageable; it could not provide the performance required by both the campus and the applications. In addition, the network group needed a better way to manage network access to enforce policies, ensure that only authorized users had access to resources, and protect the network from threats.

#### OBJECTIVE

"We had an outdated flat network without segmentation, so there was no way to keep a virus from hitting everyone on the network," explains Andrew Watson, Senior Systems Administrator. "And that's exactly what happened. The network was hit with the Blaster virus, which infected every computer on campus. We learned the hard way how critical it is to have endpoint security."

Recognizing that a network access control (NAC) solution would be important to the ongoing health of the network, the college sought a solution that would immediately address user and device access while allowing the college to make choices when it was ready to deploy a new network infrastructure. The college required a vendor-agnostic NAC solution that wouldn't lock them into buying a proprietary system.

"We needed to replace all switches on campus to meet the needs of the college, including supporting bandwidth-intensive applications such as video and VoIP," says Watson. "We also wanted to control things down to the port level and achieve greater visibility into the network's switches for better management. As a team, we knew what we wanted; we just needed to find a solution that met all of our requirements—including our budget."

#### SOLUTION

The first priority for Colorado College was selecting a network access control (NAC) solution to replace its existing computer registry program. The college's policy required each user to manually register a computer when on campus. This process required significant time and resources from the IT staff, yet was easily circumvented by students.

"With a network infrastructure that was more than ten years old, we knew we were going to upgrade the campus network to meet the needs of our students, faculty and staff," notes Watson. "We didn't want our NAC solution to dictate which network we selected. After evaluating our options, Bradford Networks' Campus Manager was the obvious choice."

[WWW.COLORADOCOLLEGE.EDU](http://WWW.COLORADOCOLLEGE.EDU)

#### INDUSTRY

Higher Education

#### COMPANY DESCRIPTION

A private, four-year liberal arts college, Colorado College is located on a 90-acre campus in downtown Colorado Springs.

#### OBJECTIVE

- Deploy a NAC solution capable of enforcing policies, ensuring that only authorized users have access to resources, and protecting the network from viruses and other threats.

#### SOLUTION

- The network includes Foundry's BigIron RX backbone switches, FastIron modular switches, and Bradford Networks Campus Manager

#### RESULTS

- Greater network visibility and proactive management of network access
- Reduced costs from eliminating of multiple networks
- Improved network control for increased security

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— Andrew Watson,  
Senior Systems Administrator,  
Colorado College

The college’s network and systems team deployed Bradford Campus Manager over spring break. When students, staff, and faculty returned from spring break, they learned that the College had deployed Bradford Campus Manager to track campus computers and ensure that all computers, whether owned by Colorado College or by the students, had up-to-date security patches and virus protection. When booting for the first time, everyone encountered a screen asking them to enter their name, their office or cell phone number, and their office or room number. Campus Manager then ran through several scans to make sure the computer security and antivirus components were updated. If the machine could not pass the scans, the student was directed to the proper websites to download and run the updates.

Bradford Campus Manager’s user-centric, appliance-based solution provided Colorado College with the integrated identity management, endpoint compliance, and usage policy enforcement capabilities they required. By actively monitoring and controlling network users and devices, Campus Manager enhanced security within the network. Through enforcement of the college’s network usage policies, the solution ensured that the campus network was safe and secure—something Colorado College urgently needed.

Because Bradford Campus Manager supported an extensive range of networking equipment, operating systems, and security applications from leading vendors, the college could evaluate many different network solutions. After considering the alternatives, Colorado College selected a Foundry Networks infrastructure.

“We had shared hubs on campus that were totally unmanageable. The new design called for a high-speed network, 10-gigabit backbone with switched 100 to the desktop everywhere on campus that was possible, except for dorms where the existing cabling pre-dated Category 5 speeds,” explains Watson. “Foundry provided a solution that meets our performance and security needs, all within our budget.”

Today the college network includes a Foundry BigIron RX series Ethernet switch in the core, to address its current needs while providing a scalable architecture that will support future network growth. Incorporating the latest advances in switch architecture, system reliance, quality of service, and switch security, the BigIron RX series allows the college to meet its performance requirements without sacrificing value.

The network also includes the FastIron family of compact and modular Layer 2/3 switching routers, including FastIron SuperX switches in the data center and FastIron GS series switches. FastIron SuperX switches extend control from the network edge to the backbone with intelligent network services including superior quality of service (QoS) for voice and video applications.

“The Foundry infrastructure was integrated seamlessly with Bradford Campus Manager to add automatic NAC capabilities to the network,” Watson points out. “The responsiveness of both Foundry and Bradford was amazing. They were in the trenches with us every step of the way to make sure the solution worked and that it delivered exactly what we expected. Foundry and Bradford felt like part of our team.”

The campus now has more than 9,000 data ports distributed throughout its academic buildings, residence halls, and other facilities. The backbone of the network operates at 10-gigabit speeds and the major academic buildings all provide 100 MB bandwidth in every classroom. The College operates a fleet of more than 90 production servers that host all campus file and print services. They also provide access to applications including the College’s administrative software, Web presence, shared storage, and backup services. All of the servers use redundant hardware and software configurations, and are backed up on a daily basis.

## RESULTS

The campus community immediately experienced the increased performance and improved access control of the Foundry/Bradford solution—improvements that positively affected the IT organization as well as campus users.

“The port-level security based upon user role is tremendous. It gives us confidence that our network is better protected than ever,” Watson says. “With Campus Manager it was easier for students to register their computers virtually without any help from IT Services. This freed considerable resources that we could allocate to more strategic campus initiatives.”

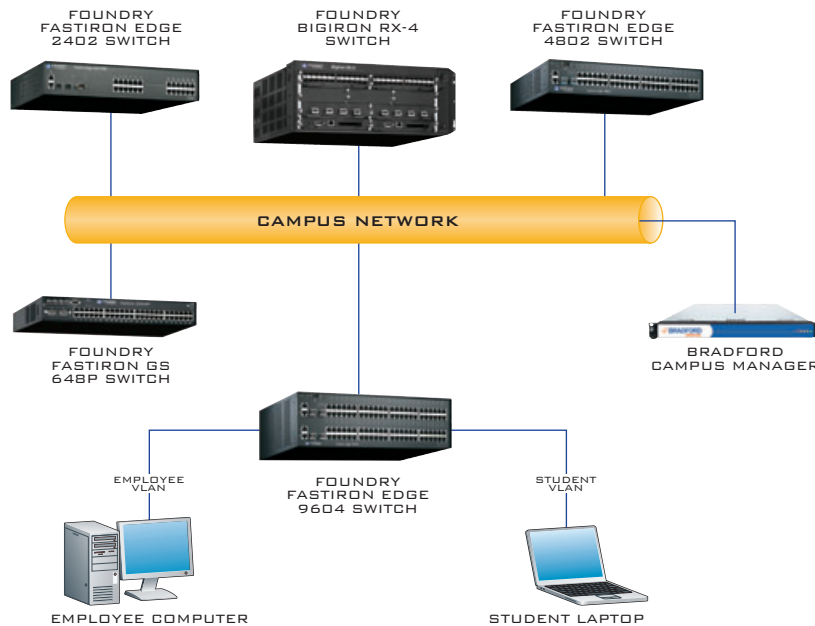
The collaboration between Foundry and Bradford Networks has allowed the campus to add role-based identity management, endpoint compliance, and usage policy enforcement to the new Foundry infrastructure by leveraging the inherent security capabilities in Foundry switches. The switches act as NAC policy enforcement points, along with standard authentication and authorization technologies such as 802.1x, RADIUS, and Active Directory, to control user access at the point of network access.

Unlike its formerly flat network, the college now has many smaller networks that the IT group uses to quarantine threats. VLANs are deployed across the campus, and the network is designed so that the configuration dynamically changes which VLAN a user is in, depending upon which network the user should be on.

In addition, network performance has increased so significantly that the college has been able to replace its fiber channel infrastructure for storage with an iSCSI solution. Implementing the new IP-based storage solution has saved the cost of a separate storage network, which, in turn, has reduced management complexity.

“At the end of the day, the combined Foundry and Bradford solution delivered exactly what we wanted—and exactly what they said it would,” Watson concludes. “Today we’re positioned to meet the computing needs of the campus community while ensuring the network is secure and protected. It’s a win-win for everyone.”

## BRADFORD CAMPUS MANAGER AND FOUNDRY AT COLORADO COLLEGE



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– Andrew Watson,  
Senior Systems Administrator,  
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## FOUNDRY NETWORKS

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NETWORKS