



DELIVERING DYNAMIC SOLUTIONS FOR HIGHER EDUCATION

WITH BROCADE
CAMPUS NETWORKS



BROCADE

Mobility Makes a Difference

- **Increased access for students:**

With anytime, anywhere, access to resources, students can conduct schoolwork in indoor and outdoor settings—the campus quad, cafeteria, student center, library, and elsewhere around the campus.

- **Greater faculty flexibility:** Wireless solutions enable instructors to deliver lessons outside the classroom, such as lab exercises in field settings.

- **Integration of rich learning content:** Instructors can complement classroom instruction with online activities to create an integrated learning experience.

- **Improved communication and collaboration:** By providing easy access to communications tools such as e-mail and online group discussion boards, wireless technology facilitates collaboration across multiple disciplines.

As the costs of higher education continue to increase, so do the challenges faced by colleges and universities. With more students attending college and budgets under greater pressure than ever, schools are seeking new ways to attract students, retain staff, and deliver a world-class educational experience.

Technology is playing a key role in ensuring the success of these efforts. From applications that foster greater campus collaboration to secure mobile solutions that provide anywhere, anytime access to campus resources, the network has become and will continue to be the foundation of the campus experience.

THE NETWORK: A FOUNDATION FOR THE CAMPUS

Because today's education imperatives rely so heavily on the network to support the secure delivery of applications and services, implementing a reliable foundation is vital to meeting both short- and long-term goals. Collaboration tools such as electronic whiteboards and online meetings—and the need to record and store student grades and transcripts—are driving today's key networking requirements.

In addition to supporting anywhere, anytime communications (both within the campus environment and between physical campuses), networks for higher education must meet the high bandwidth and low latency required for high-performance and computing-intensive research initiatives. Add the need to prevent unauthorized access to data, and it quickly becomes clear that today's networks play a more critical role than ever before.



BROCADE NETWORKING SOLUTIONS

With over a decade of experience delivering proven solutions for higher education, Brocade® helps you simultaneously reduce your costs, provide strong end-to-end security, and support green initiatives while continuing to meet your increasing connectivity demands.

Scalable, open standards-based Brocade networking infrastructure solutions support collaborative communications and adapt to the complex, dynamic needs of the campus—protecting your existing investments today and saving you money well into the future. And because Brocade understands the open nature of an education network, these solutions leverage stringent security to protect information from the edge to the core of the network.

MEETING THE NEEDS OF THE SECURE MOBILE CAMPUS

Fueled by the explosive adoption of mobile devices among students and faculty, the need for greater collaboration is redefining the education experience. Faculty are finding new ways to incorporate mobile devices into their teaching and learning processes, sharing content across laptops, netbooks, tablets, PDAs, and mobile phones. The prevalence of, and dependence on, mobile devices requires that campus connectivity be ubiquitous regardless of location or type of device.

Colleges and universities can rely on Brocade to deliver the extensive wireless coverage, bandwidth, and security a campus mobility solution requires. The Brocade Mobility family of products features an 802.11n access point with a dual-expandable design, which supports high-speed wireless voice and data services with speeds of up to 600 Megabits per second (Mbps), has two to three times the coverage of previous private wireless networks, and a self-healing mesh networking capability to help ensure continuous connectivity.

Dual-radio Brocade Mobility 7131 802.11n access points operating at full capacity require Power over Ethernet (PoE)+ and can be powered by a Brocade FastIron® Series switch, which provides the PoE+ power density, performance, scalability, and flexibility required by integrated wired/wireless campus LANs. This eliminates the need for power connectors and transformer bricks at each access point and facilitates higher availability by enforcing power supply redundancy at the switch rather than the access point. With potentially hundreds of

Case Study:

Savannah College of Art and Design (SCAD)

To keep pace with an ever-expanding matrix of campuses, SCAD's IT network must be both flexible and scalable.

By leveraging networking solutions from Brocade, SCAD can meet the performance, scalability, and flexibility requirements for its next-generation enterprise campus network, while minimizing overhead costs.

"We aim to provide a LAN-like feel across our distributed campuses. Our system always needs to work. That's the level of reliability we strive for, and Brocade has given us the ability to provide that."

Harley Lingerfelt, Vice President for Information Management and Technology

802.11n access points per network, PoE-enabled Brocade FastIron Series switches help streamline deployment and maintenance while ensuring maximum availability—facilitating always-on access.

SIMPLIFYING THE INTERCONNECTED CAMPUS

An educational campus continually grows over time, with new facilities enhancing existing campus capabilities and new locations expanding its reach. As a result, today's education network infrastructures have become complex extensions of campus operations that must adapt to rapid growth, data-intensive applications, security threats, and new technologies that push the edge of the network.

Brocade enables the use of Virtual Private LAN Services (VPLS) to dramatically simplify interconnected campus networks. Based upon the needs of specific departments and users, colleges and universities can segment their networks, providing simplified yet secure connectivity over distances and reducing network operating costs.

Because Brocade solutions enable the delivery of advanced services over a converged IP/MPLS-based infrastructure, they help reduce data traffic congestion while delivering Quality of Service (QoS) to make sure critical applications are optimized across the network. The result is a highly scalable, cost-effective network that keeps data flowing to the users and applications that need it.

OPTIMIZING PERFORMANCE IN HIGH-PERFORMANCE CLUSTERS

Few network environments are as demanding as those supporting the High-Performance Computing (HPC) needs of researchers. HPC clusters, made up of hundreds or even thousands of server racks linked together, present unique challenges for campus networks. Because HPC clusters must handle trillions of operations per second, any type of downtime dramatically affects the cluster's processing productivity.

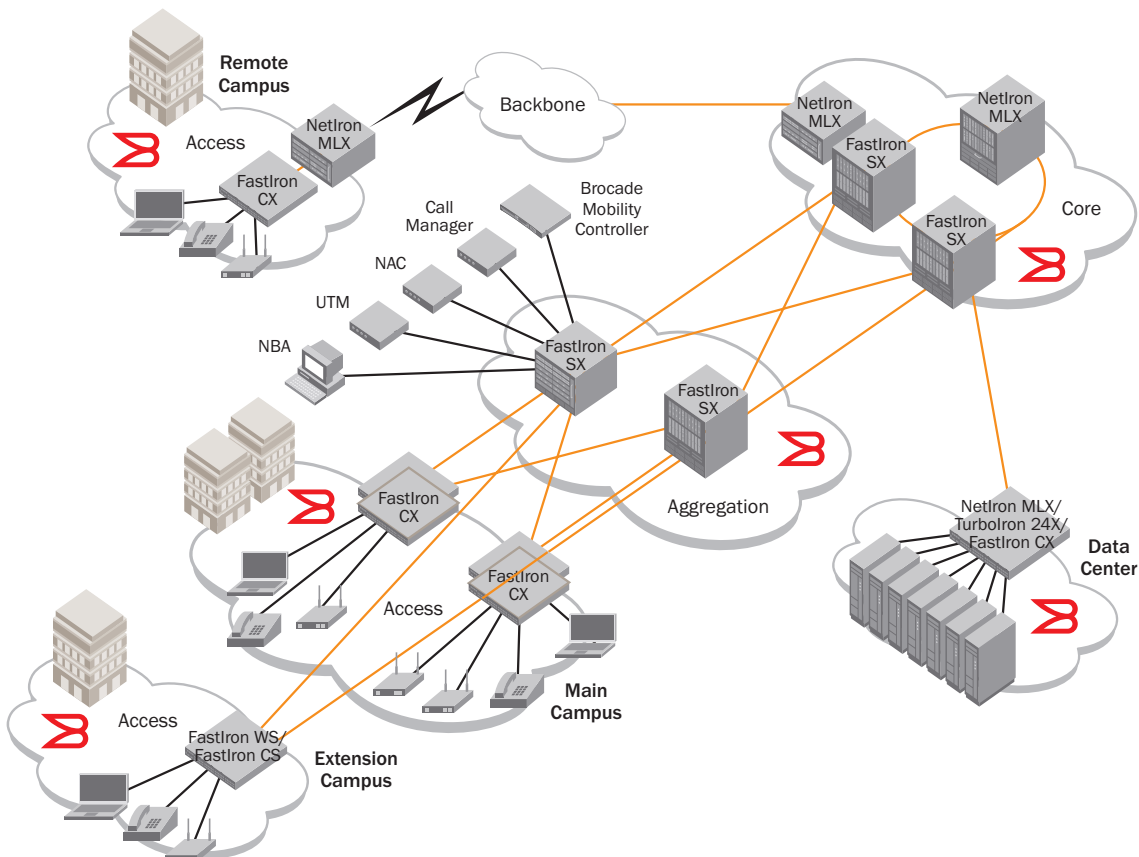
As a result, the network supporting HPC must deliver unsurpassed levels of reliability and resiliency while scaling to meet growing capacity and bandwidth needs. And because energy consumption in HPC environments is expected to double in the coming years, energy-efficient network solutions are more important than ever.

Case Study: West Chester University of Pennsylvania

When West Chester University was enhancing its network infrastructure, it wanted a solution that could handle 10 to 100 Gigabit Ethernet (GbE) rates on the same network switch. Because the school also needed enhanced capabilities such as PoE for VoIP services, gigabit connectivity to the desktop, and the ability to enforce endpoint security policies, it turned to Brocade.

"Brocade FastIron Edge and GS PoE switches were ideal for the network. We developed a close working relationship with Brocade, to the point where it felt like they were looking out for us and making sure we could not only meet our needs today, but beyond."

Joseph Sincavage, Director, Networking and Telecommunications



A typical three-tier campus network architecture with access, aggregation, and core layers.

Accelerating New Service and Technology Deployment

As the network plays an increasingly critical role on university campuses, Brocade Global Services offers professional and technical support services to help higher education build and maintain intelligent networks.

- **Assessment and Health Check Services** help institutions evaluate the performance, availability, security, and manageability of existing wired and wireless networks, providing recommendations for improvement and a baseline to assess the impact of new technology deployments.
- **Design, Implementation, and Migration Services** provide best-practice architecture design options that meet current and future requirements. Brocade services accelerate solution deployment to ensure maximum availability of intellectual property and research data.
- **Technical Support and Onsite Residency Services** help higher education facilities maximize availability, optimize performance, and simplify network management.

To learn more, visit www.brocade.com/services.

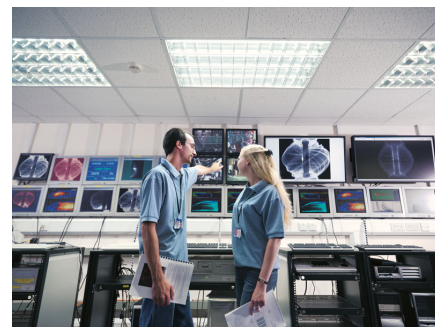
A longtime provider of networks for HPC systems, Brocade continues to demonstrate its technology leadership by developing scalable, power-efficient solutions that provide low latency and high port density for research environments. Designed for more effective power utilization, Brocade network solutions lead the industry in power efficiency—helping you meet your “green” initiatives while reducing both your power and cooling costs.

A POWERFUL, OPEN PARTNER ECOSYSTEM

Strategic, long-term relationships with the world’s leading systems vendors help ensure that standards-based Brocade solutions integrate easily into a variety of architectures. Emphasizing best-in-class solutions, the Brocade partner ecosystem leverages partner organizations’ expertise and resources, resulting in the ability to develop innovative, industry-leading solutions.

In fact, Brocade supports the performance, resiliency, and reliability requirements of higher education with:

- Reliable, redundant designs that help maximize uptime
- Wire-rate, low-latency products built to optimize performance
- Industry-leading scalability for continued growth
- The industry’s most efficient power utilization
- Price/performance leadership



YOUR NETWORKING PARTNER FOR HIGHER EDUCATION

As higher education continues to address the evolving needs of students, faculty, and staff, Brocade can help you create a solid foundation for today and tomorrow. With the expertise to deliver intelligent solutions for campus networks, Brocade is helping colleges and universities all over the world meet their most difficult challenges.

From supporting the deployment of collaborative applications and services to interconnecting disparate campuses and ensuring that security is in place every step of the way, Brocade is delivering the solutions that keep your dynamic campus running as efficiently as possible.

To learn more, visit www.brocade.com/products. You can also view Brocade videos at www.youtube.com/brocadevideo.

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