



# UNIVERSITY OF BERN

## IP NETWORK

## University Achieves Network and Research Excellence with Brocade

### EXECUTIVE SUMMARY

#### Challenge

Enhance research efforts through improved student and faculty access to rich media, mobile, and research applications

#### Solution

- Brocade ICX 6610, 6430, and 6450 Switches
- Brocade MLXe Core Routers

#### Results

- Supported increased bandwidth demand from multimedia, research applications, and mobile applications
- Delivered four times the 100 Gigabit Ethernet (GbE) wire-speed density and nine times the system capacity of alternative router offerings
- Supported high-bandwidth needs at the core and network edge for superior campus-wide performance
- Provided the network foundation for future connectivity of 40 GbE and 100 GbE

All universities want to educate young minds, but balanced with that they have business goals aimed to keep the school financially viable. Universities want to attract a diverse population of high-achieving students. They also want renowned, credible professors and researchers who are published in their fields. Getting the best students and leading researchers often depends on the university's technology.

Professors need high-performance networks to support their research, and students want online courses, multimedia learning tools, and—most of all—mobility. For students, smartphones, laptops, and tablets are as important as what is on the cafeteria menu.

The University of Bern, Switzerland, realized that its core routers were at their end of life, and that it needed to upgrade them to remain a leading research institution. "Our work is based on high quality and the constant use of the latest technologies," says Fritz Butikofer, Head of IT Infrastructure Group, Customer Services Department, at the University of Bern. "However, with students and staff demanding better, faster access to online

applications, and our research projects consuming more bandwidth and network resources, we reached our limit due to an IT environment that could no longer cope with demand."

Video streaming, a larger population of mobile devices, and new research applications were pushing the network's capacity. The research requirements were especially stringent. The university leads four National Centers of Competence in Research (NCCR): Climate, North-South, Trade Regulation, and TransCure. Additionally, it supports the NCCR MUST research program, which brings together 16 Swiss research groups working across the fields of physics and chemistry, with ETH Zurich.

"We wanted a network environment that could offer the immediate routing performance and reliability we needed while providing a foundation for the future rollout of 40 Gigabit Ethernet [GbE] and 100 GbE connectivity. Ultimately, this would enable us to easily share research data across our global campus environment," says Butikofer.

# BROCADE

## PERFORMANCE AND MANAGEMENT IMPROVEMENTS

The university worked with Brocade Partner BNC Business Network Communications AG to review and compare network solutions. The top priorities were reliability, 10 GbE bandwidth capabilities, and upgrade options for 40 GbE and 100 GbE. The network crosses administrative buildings and offices throughout the campus where staff and faculty need access to a variety of applications and network services.

After comparing different core and campus networking solutions, the University of Bern chose Brocade® MLXe Core Routers for its network core and Brocade ICX® 6610, 6430, and 6450 Switches for the network edge.

As a High-Performance Computing (HPC) environment, the University of Bern must manage surges in bandwidth-intensive multimedia and research applications and mobile application growth. At the edge of the network, Brocade ICX campus switches connect the administrative offices to the 10 GbE network. The Brocade ICX 6610 combines chassis-like reliability and performance with the flexibility and affordability of a stackable switch, providing 8×10 GbE uplink ports and bandwidth of 320 Gbps. Brocade ICX switches feature a rich set of Layer 2 and Layer 3 functionality, and the ability to support advanced features such as Power over Ethernet (PoE), Energy-Efficient Ethernet (EEE), and MACsec encryption for link-level data protection.

Brocade MLXe routers support this intense environment by delivering up to four times the 100 GbE wire-speed density and nine times the system capacity of alternative router offerings. In addition to performance improvements, Brocade routers introduced management advantages. The Brocade MLXe router provides greater network simplicity by significantly decreasing the amount of infrastructure needed, which can also help reduce operational overhead.

“Brocade MLXe routers have provided us with a solid foundation and offer attractive expansion options for the future,” says Butikofer. “We are already planning to deploy our first 100 GbE links between data centers. We also plan to upgrade our legacy 1 GbE links at the campus edge to 10 GbE and 40 GbE, to radically improve performance and the user experience.”

## THE NEXT DECADE OF NETWORKING

As the university looks ahead, it is preparing for a larger mobile population and broader, more intensive research activities. The Brocade network will adapt as the university’s needs change. The entire family of Brocade ICX switches is based on the [Brocade HyperEdge™ Architecture](#), which will allow the University of Bern to effortlessly upgrade the network as its needs evolve. The university will be able to improve network operations and lifecycle management while experiencing improved automation, efficiencies, and value.

For more information, visit [www.brocade.com](http://www.brocade.com).

## WHY BROCADE

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— Fritz Butikofer, Head of IT Infrastructure Group, Customer Services Department, at the University of Bern

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