BRIEF

Why Connectivity Is Critical to Higher Education Success

Lumen solutions provide the essential infrastructure to power effective teaching, learning, and research nationwide.

LUMEN®
The Platform for Amazing Things℠

Reliable, high-speed connectivity is essential for high-end research and innovation, but also for teaching, learning, and daily campus operations. The shift to remote learning during the early stages of the pandemic revealed that many areas of the country still lack this basic capability that others take for granted.

Lumen is working with state organizations and higher education institutions nationwide to change that. Whether it's bringing middle-mile connectivity to rural communities or powering innovation at individual colleges and universities, Lumen is a strategic partner in supporting digital transformation within education.

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Extending Middle-Mile Access

As the executive director of Link Oregon, Steve Corbató works to bring fiber connectivity to public and nonprofit organizations across the state. It's a challenging job in an area with so much wide open space, mountains, and volcanic rock.

"The pandemic showed us that about 20 percent of Oregonians don't have access to broadband on a reliable and consistent basis," he said.

Many smaller communities have no broadband options. Others have high-speed connectivity, but it's not resilient. "We have a number of communities with only one [broadband] path," Corbató explained. "If there's a wildfire or other natural disaster, those communities lose their internet access. That's not a hypothetical situation — it happens frequently."

This lack of connectivity hinders the ability of students to take classes from home. It also limits the ability of scholars to perform high-end research at rural colleges.

"Research is becoming increasingly distributed, with large data sets and wide arrays for collecting and measuring data," Corbató observed. "Research institutions need extensive connectivity to operate and to spur innovation."

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A new pool of federal money will help.

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The Infrastructure Investment and Jobs Act (IIJA) of 2021 provides $1 billion to expand middle-mile connectivity into unserved and underserved communities.

“We’re hoping that one outcome of this [legislation] is the ability of more communities to get robust and resilient middle-mile connectivity,” Corbató said, “so their connection is always on.”

Link Oregon is working with Lumen on projects to expand connectivity throughout Oregon using funding provided under IIJA.

research center that Oregon State University operates in a remote corner of the state.

“It’s an area where research is critical,” Corbató said. “Their range management research is vital. That site had been operating on legacy technology at several megabits per second — far less than what I have for connectivity at home in Portland. They couldn’t conduct the science they needed to do. They needed to download remote sensing information to track cattle using wireless transmitters on each of the animals, and they just couldn’t do that.”

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“Lumen is a leading fiber provider for us,” Corbató said. “The company has been a strong supporter of our network development.”

In one example, Link Oregon is working with Lumen to establish a fiber connection to support an agricultural

Link Oregon’s partnership with Lumen is helping the organization meet the state’s research and education needs.

“There’s a principle in biology that says if you’re not growing, you’re dying,” Corbató said. “I think the same holds true for networks.”

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Enabling Rich Student Experiences

Russell Kaurloto arrived as CIO and vice chancellor of information technology for the University of Denver in July 2021 with an ambitious plan to make the university a leader in innovation.

His vision includes equipping students with devices that are both WiFi and LTE enabled, allowing students to connect and access digital content anytime, anywhere. He also wants to ensure that students and faculty are digitally literate and able to communicate their ideas multimodally through video, print, and other media.

To support this vision, the university is moving to 100 Gbps connectivity and eventually will upgrade to 400 Gbps.

"We were fortunate to receive a gift from one of our trustees of close to 1,000 acres. There are 40 buildings on this land, which used to be an old Girl Scout camp," Kaurloto said. "We're looking to require every student to spend time in this beautiful setting, where they'll learn about wellness, ethics, and getting along with others — critical life skills that are less about books and more about self."

University leadership challenged Kaurloto to create a "digital desert" environment in which the technology was readily available, but able to be turned off as desired. The 4D Student Experience Campus "is a key differentiator for us," he said, "and we firmly believe it could create dynamic, lifelong change for our students."

Lumen is driving student success with IT solutions that enhance teaching, learning, and research while supporting better student and staff experiences both on and off campus.

Kaurloto is also working to build a smart campus infrastructure powered by sensors and beacons that transmit data to and from multiple sources to support an improved student experience.

Although a robust technology infrastructure is foundational to Kaurloto's vision, the university is also opening a new 4D Student Experience Campus in Red Feather Lakes within the mountains north of Denver, where the goal is to have every student unplug and experience a unique, immersive offline curriculum.

Lumen is helping to support Kaurloto's vision by providing resilient, high-speed connectivity across the university. Kaurloto is exploring a managed network services model in which the university would pay for network services like a utility, and Lumen would own, operate, and maintain the network infrastructure.

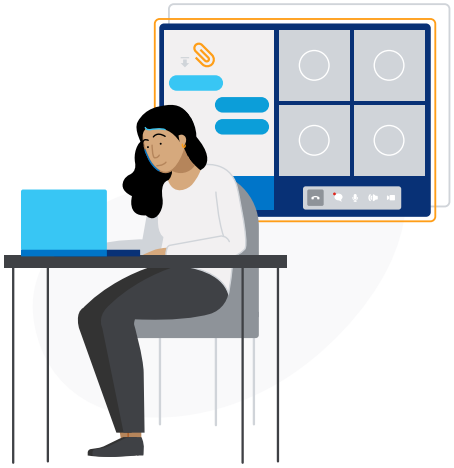
"Hiring effective network engineers is a challenge for universities," he explained. A managed services model would allow the university to offload this responsibility so that IT staff can focus on more strategic priorities.

Driving Success

With its extensive experience supporting educational institutions, Lumen is driving student success with IT solutions that enhance teaching, learning, and research while supporting better student and staff experiences both on and off campus.

"Connectivity is critical," Kaurloto concluded. "Without that, we have nothing. We might as well unplug what we're doing right now if we don't have that piece."

Lumen Solutions for Higher Education



Adaptive networking. Lumen has a long history of serving higher education institutions, as a portion of its approximately 450,000 route miles of fiber form the backbone of the high-speed Internet2 research network. Lumen's flexible, on-demand networking solutions include software-defined networking, public and private cloud connectivity, VPN and Ethernet services, managed network services, and more — delivering scalable, high-performance connectivity for critical data and applications.

Edge computing. With edge solutions from Lumen, colleges and universities can store data and applications in public or private clouds outside the network perimeter, where they won't interfere with regular network traffic yet are secure and readily available.

Connected security. Lumen maintains its own in-house threat intelligence team, Black Lotus Labs®, that leverages data scientists, machine learning technology, and behavioral analytics — providing insight that enables colleges and universities to quickly detect, protect against, and respond to cyberattacks.

Collaboration solutions. Lumen offers integrated voice, video, and web solutions designed to enhance communication and collaboration within and between institutions, powering remote learning and working.

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