



Keeping UETN connected over rough terrain

High-speed network transforms education and health care across Utah

The Utah Education and Telehealth Network (UETN) is the statewide entity that provides connectivity for public education and telehealth in Utah. Its stated mission is “connecting people and technologies to provide the highest quality education and health care regardless of where they live.” Originally conceived as an analog system for interactive video conferencing, it has evolved to a high-speed network that delivers world-class educational experiences and vital health care services to residents throughout the state.

Technology has fundamentally changed education and health care. Cloud technology and high-speed networks mean that access to the best educators and health services are just a click away, making it possible for small rural communities to access the same quality of education and health care services as those in large cities. UETN pioneered this kind of connectivity for Utah’s citizens and continues to enhance its role in their lives.

Connecting people and institutions in rural areas with high-bandwidth networks

While most of Utah’s population lives around Salt Lake City, Ogden and Provo, Utah’s land is predominantly rugged and rural. It includes iconic but isolated beauty like Rainbow Bridge and Monument Valley.

The state’s smaller communities are spread among three different areas: the Rocky Mountains that carve up the state through its various ranges, the high brush and canyon area of the Colorado Plateau in the south and east, and the Basin and Ridge Province that contains both the Great Salt Lake and one of the driest deserts in the United States including the Bonneville Salt Flats. Nearly half a million Utah residents live in these smaller, rural communities.

Connecting these isolated areas first started when television engineers hauled bulky transmitting gear on horseback to mountain peaks in Utah more than five decades ago. The effort later resulted in an extensive television translator network that pioneered the way for closed-circuit TV for education.



Utah Education and Telehealth Network

At a glance

- **Customer:** Utah Education & Telehealth Network
- **Industry:** Education and health care
- **Challenge:** Connecting rural schools, clinics, hospitals and colleges with resources and agencies across the state
- **Solution:** CenturyLink® GeoMax® DWDM network over fiber creates high-speed, secure connections to the world

Today, the network must have the capacity and reliability to handle the demands of high-bandwidth applications and video. For the average video class, each feed requires 3 to 4 Mbps per second of video. In a class of 32 students, this quickly adds up to 150 to 250 Mbps, requiring significant network capacity. “It’s no longer just a nice to have,” said James Stewart, UETN chief technology officer. “The network is an absolute requirement to support the mission-critical education that’s going on within these schools and districts.”

In addition, education and health care are highly regulated and require extra security measures to ensure privacy of student and patient data. Adherence to specific regulations such as the Children’s Internet Protection Act (CIPA), which defines children’s network privacy and security, and the Health Insurance Portability and Accountability Act (HIPAA), which regulates patient privacy in health care, requires a deeper understanding of how data is handled on the network. UETN needed a partner that understands the various intricacies of complying with state and federal regulations.

Solution

UETN built their network on the CenturyLink GeoMax networking platform running over dedicated fiber optic cabling. GeoMax uses Dense Wavelength Division Multiplexing (DWDM) technology to vastly expand the available bandwidth and flexibility of fiber cabling.

The GeoMax technology creates multiple circuits that run independently of each other over the same fiber infrastructure while providing security and high speed. GeoMax is a dedicated network set up on a custom basis so bandwidth can be allocated as needed. By leasing such bandwidth, UETN qualifies for E-rate and Rural Health Care (RHC), federal programs that provide substantial discounts to public education and rural health care. The dedicated nature of the network also addresses the security and compliance needs for both the schools and the health care institutions on the network.

Since starting out, UETN has increased its network capacity from 10GB to more than 100GB. The added capacity allows UETN to handle the increased demands that video streaming and teleconferencing put on its network. In addition, they have been able to extend their reach to provide high-bandwidth networking capabilities to more rural areas and have established a customizable infrastructure that will enable them to add more sites and upgrade capacity to meet future demands.

New lesson plans, new health care options for rural communities

UETN is well on its way to achieving its mission of connecting the entire state. Today, the network connects nearly 1,700 sites statewide, including public schools, colleges, hospitals, health centers and clinics. It serves approximately 650,000 elementary and high school children as well as 200,000 students in higher education and technical colleges and 70,000 educators. Those numbers will only increase as the population of the state continues to grow. “Many patients no longer need to travel great distances to connect with health care providers,” said Ray Timothy, UETN CEO and executive director. “They’re able to connect via technology through the Telehealth network to get the services and support that they need.”

In addition, education is no longer restricted to the traditional brick and mortar classroom. Technology breaks down the walls and brings the world to the classroom through virtual field trips, teleconferencing, and online access to textbooks, video content and interactive classes. Teachers have changed the way they prepare lesson plans because they can give students access to all the resources on the internet and video conference with people around the world.

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“We can use interactive video conferencing to connect a student to a teacher who is a hundred miles away but is one of the best teachers in that subject,” said Troy Jessup, associate director of network operations for UETN. “It gives students the opportunity to have the best content, the best instruction and the best access to the technology and everything else they need to be extremely successful. And they can do that being in the farthest reaches of our state and still have that same rich experience as students in the city.”

More communities, more growth, more innovation

The future of UETN is one of continued growth and sustainability. UETN estimates that with continued population expansion, 26 new schools will need to be added to the network each year.

As technology integrates even deeper into the education process, UETN’s future growth hinges on its ability to provide reliable, high-bandwidth connectivity throughout the entire state of Utah. The challenge is broader than just serving more students. The network will be adding more people, more locations, more devices, and more high-bandwidth applications to the mix. It’s a tricky problem requiring a partner that understands what UETN needs to accomplish today in planning, so they can continue to fulfill their mission in the future.



“We face a multiplication problem with more schools and students multiplied by more devices and applications, all using more bandwidth. CenturyLink is an essential partner as we seek to address that growth.”

- Rich Finlinson, UETN Associate Director of Communications
