



Case Study

# DEER CREEK SCHOOL DISTRICT



## DEER CREEK SCHOOL DISTRICT TAPS BRIDGEWAVE'S ADAPTRATE, GIGABIT WIRELESS LINKS TO EXTEND CAMPUS CONNECTIVITY



Deer Creek School District in Edmond, Oklahoma, with more than 3,600 students currently enrolled in elementary, middle and high schools, has experienced 10 percent annual growth for the past 11 years. Located in the rural but affluent north side of Edmond, Deer Creek prides itself on pursuing high academic standards of achievement and contributes its success to the teachers, parents, students and community members that are active in the district.

Deer Creek provides students and faculty remote access to the District's computer network system, including Internet access and Web mail, in an effort to promote educational growth and knowledge. Connectivity to two of the District's elementary schools relied on unlicensed, low frequency wireless solutions, and suffered from poor performance due to interference. Additionally, because of the limited bandwidth inherent with these unlicensed wireless solutions, teachers and administrators at these elementary schools were frustrated with inadequate network internet connectivity needed to run essential education applications such as online programs, VoIP and video on the network. Trustees of the Deer Creek School Board were concerned that the poor performance of the current systems would detract from Deer Creek's mission of providing high quality education and they might not remain competitive with other schools in the area. They wanted to ensure that all students were provided access to education fundamentals based on strong online programs. For this, they needed a network infrastructure with high capacity and seamless connectivity.

*"We were concerned that our large rural campus and unpredictable weather would prohibit us from finding an affordable, high-speed connectivity solution. BridgeWave's AdaptRate™ technology provides seamless connectivity despite inclement weather and ensures the performance of high-priority applications such as VoIP and video."*

*Tony Brancich  
Director of Technology  
Deer Creek School District*

The School Board gave Tony Brancich, director of technology at Deer Creek Public Schools, the responsibility of finding an affordable and reliable solution to address the lack of bandwidth for the two schools.

## THE CHALLENGE

Each elementary school, located more than three miles from the district office, needed access to the data center located in the District Office building.



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In seeking a high-capacity network connection, Deer Creek was faced with the following challenges:

- Increase network capacity to provide a gigabit of bandwidth for applications including video, data, and VoIP
- Deliver high-quality, seamless connectivity to remote campuses in rural areas, bridging distances of 3 to 4 miles in unpredictable, violent weather conditions, including torrential rain.
- Keep implemented costs low.: Exorbitant up front estimates for fiber trenching in upwards of \$1.5 million plus monthly recurring OPEX costs

*"We had to look for a solution that would alleviate our network connectivity problem. Because of network interference, our low-frequency wireless links left students and faculty unable to work for hours at a time, and this was unacceptable. We needed a reliable, secure and cost-effective solution – and fast."*

## THE SOLUTION

Since Deer Creek had previously deployed unlicensed radios to connect the two elementary schools to the District Office, Brancich knew that wireless products would offer the most cost-effective and timely solution for Deer Creek's needs. In order to combat the school's connectivity problems, he extensively researched high-frequency wireless technologies that would provide full-rate gigabit bandwidth across the network. The district selected to move to BridgeWave's 80 GHz licensed frequency to alleviate concerns stemming from previous problems with interference with unlicensed systems, and to support the three to four miles of distance between the two elementary schools and the data center.

Considering the distance between the schools and the data center, as well as unpredictable periods of heavy rain, Brancich determined that BridgeWave's AR80X product would best fit their needs. BridgeWave's AR80X operates in the licensed 80 GHz band with exclusive AdaptRate™ capabilities, which momentarily switch transmissions from GigE to 100 Mb/s data rates during intense or violent weather patterns or during moments of torrential downpour to maintain highly reliable connectivity - ideal for dealing with the district's inconsistent weather patterns. This adaptive rate technology temporarily increases link budget by reducing over-the-air signal bandwidth, rather than changing modulation order, ultimately improving link availability in times of heavy rainfall.

In addition, the BridgeWave AR80X, AdaptRate radios have built-in AdaptPath™ capability that extends the reach of gigabit wireless while ensuring superior link availability. AdaptPath offers greater flexibility in meeting network capacity, range and uptime requirements. With BridgeWave's extended range, AdaptRate and AdaptPath technologies, Deer Creek deployed GigE links well beyond traditional distances and was able to realize higher levels of service availability compared to alternative millimeter wave systems.



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Deer Creek placed two radios at each elementary school – one acted as the functioning network backbone and the other for redundancy – with adjoining radios at the data center.

*“BridgeWave’s AR80X provided unparalleled network connectivity,” said Brancich. “The adaptive rate modulation technology has ensured our network applications will maintain high-performance, despite heavy rains.”*

Deer Creek also took advantage of ultra low-latency on the BridgeWave links to implement voice and video over IP between the locations.

*“Having ample bandwidth and extremely low latency to support VoIP was the deciding factor for us,” Brancich noted. “Previously, our network was unpredictable and we were unable to reliably provide service to our schools. With BridgeWave, our schools now experience highly reliable, seamless network connectivity. A solution that supported our entire network architecture and one that was scalable to accommodate the ever-increasing applications was a real win.”*

## THE BENEFITS

For the past six months, BridgeWave gigabit wireless links have served as a reliable network backbone, despite Oklahoma’s severe weather patterns. In addition, Deer Creek has already achieved a complete return on investment (ROI) on its gigabit wireless network .

*“We experienced ‘instantaneous ROI’ with the deployment of BridgeWave’s gigabit wireless links. Not only was our deployment one-tenth of the cost of laying fiber, it was functional after just a few days rather than the months that it would have taken had we chosen fiber,” said Brancich.*

The most important benefits the school system has experienced since its installation of the BridgeWave radios is the high bandwidth capacity to handle multiple applications, seamless access and most importantly, improved productivity in the classroom.

*“How do you put a price tag on kids being able to learn and work more effectively and teachers being more productive? With our future-proof wireless links, Deer Creek School District is now able to keep up with technological advancements to provide creative learning tools because of the excess bandwidth that BridgeWave’s AR80X - our chosen gigE solution - provides.”*



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**CUSTOMER:** Deer Creek School District based in Edmond, Okla., <http://www.deercreekschools.org>

**INDUSTRY:** Education (K-12)

**CHALLENGES:**

- Needed gigabit Ethernet bandwidth for the transmission of video and data, and VoIP traffic
- Needed a solution that was immune to interference
- Torrential downpours hinder network connectivity
- Exorbitant estimates to lay fiber

**SOLUTION:** BridgeWave AR80X AdaptRate™ wireless links.

**BENEFITS:**

- Highly reliable connectivity between two remote elementary schools and the central (District Office) data center.
- Complete ROI in approximately six months.
- Increased capacity for high-speed transmission of bandwidth-intensive data including video and VoIP.



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