

# Fiber Case Study: Jackson County School District

Located in northeastern Alabama, the rural Jackson County School District serves more than 6,000 students spread among 18 schools, including eight elementary schools, two middle schools, one high school, an alternative vocational school, and seven K-12 combined schools.

## CASE STUDY



### The challenge

The district, which covers an area of about 800 square miles — a circuit of all of the schools would require a 150-mile trip — faced challenges in creating a communications system. “Moving from east to west, we have the Sand Mountain Plateau, and it drops down into the Tennessee River Valley, and then it goes back up to Cumberland Plateau and drops back down into Paint Rock River Valley,” said Dr. Angela Guess, the district’s curriculum and technology coordinator. “So with our geography, we are challenged.”

In 1998, the district started looking for a phone and data system that would link the administration building and all 18 of its schools. It quickly concluded that traditional phone-line service was out of the question — Jackson County School District boundaries fall within five local access transport areas (LATAs) divided up among three local phone companies. That meant calls between just about any two schools would be long distance, and would generate a big phone bill in the process. “Every time they handed off from one LATA to another, the price just jumped,” Guess said.

Fiber-optic resources also were limited, so initially the Jackson County School District opted to go with a wireless network service provider approved by the State of Alabama to work with rural schools. “But the wireless provider was not able to demonstrate that they could take us to the place we needed for the kind of video conferencing and video streaming we wanted to do,” Guess said.

### The solution

When the wireless contract expired, the district put out requests for proposals among telecom providers, and Charter Business® answered the call. Charter hammered out a plan that called for direct fiber-optic data connections linking all 18 schools and the district’s headquarters. Construction to extend the necessary fiber spurs from Charter’s regional optical backbone began in 2002, with Charter and the school district transitioning each facility from the older wireless system to the new network once the fiber link was available.

## How Jackson County School District benefits

With the fiber-optic network in place, Jackson County School District was able to develop the distance-learning program it needed to serve students district wide. In the elementary schools, the distance-learning system — consisting of a classroom equipped with a full sound and video conferencing system — is used for virtual field trips and professional staff development. In each K-12 school, there is at least one distance-learning classroom, allowing the schools to tap into elective classes that their particular school may not offer.

The distance-learning program also allows schools to share teacher resources; so, rather than requiring one teacher to drive between three schools daily to teach three separate Spanish classes, the instructor can teach a single class at one school, with the other two tuning in via live video feed.

In recent years that program has been linked into the State of Alabama's Access Program, which offers video distance-learning resources to students statewide. As a result, Jackson County students are using the distance-learning technology to participate in classes elsewhere in the state, while Jackson County teachers are extending their classrooms to as many as five other districts and counties at one time.

This would not be possible without a high-speed fiber-optic connection, Guess said. "With the Charter connectivity, we are able to have distance-learning classes where the pictures are clear, they are real time, there's no drag where the voice and the picture get out of synch. So it is working for us."

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JACKSON COUNTY SCHOOL DISTRICT

## Improved communications and security

Charter's network is also working when it comes to Jackson County's basic communications needs. The same fiber-optic network that supplies distance learning also supports the school district's voice-over IP phone system, which solves the problem of straddling so many local calling areas. "We have an IP phone system that allows us to talk back and forth between all of the schools without any fees," Guess said.

Aside from saving the county a good bit of money, the system also offers the security of better communications, with a phone now available in every classroom. "So I immediately know how to contact every school with an emergency," she said. "It's been a safety plus for us, in addition to a huge cost-saving measure — more than we knew it could be."

That security is now extending to a school video-monitoring system, considered a must for school districts who wish to ensure student

and teacher safety. Jackson County School District is installing IP-addressable security cameras in every school, offering administrators or the superintendent to log on via any internet-connected computer to view what's happening in the buildings in real time.

Recently, Jackson County School District was ground zero for a series of rare, deadly February tornadoes that ripped through the area, barely missing its 18 schools. The video cameras and a competent phone system are critical tools in such emergencies, now and in the future, to keep administrators and teachers aware of threats.

The fiber connectivity also has improved the district's own data and records systems by pooling all of the servers located at each school into one server farm that can be more easily maintained by its IT staff. "The schools don't know the difference because of the bandwidth whether the server is on their grounds or at a central location; but if a server goes down, it's three steps away from our technician," Guess said. All of this comes with a fiber-optic network that has proven its reliability after six years in service. During that time the district has seen very little downtime.

That doesn't mean that a storm or construction accident hasn't occasionally resulted in a fiber cut, but "it's quickly restored, and sometimes [Charter] will know about a problem before we do, even if it is after school hours," Guess said.

"It has been very easy to work with Charter," Guess added. "I have a point of contact that I can go to if there is a problem."

Charter even worked with the school district on the cost side, gaining federal e-rate qualification to offer discount service and funding for special projects.

That includes an upgrade project under a renewed service contract forged with Charter in 2007. Under that new contract, and with federal funding support, Jackson County will ramp up school connection speeds from 100Mbps now to 1Gbps, and add a dedicated 10Mbps channel for its rapidly growing distance-learning program.

The district also is looking ahead, with plans for more technical innovations in the coming years. "We're always thinking about where we go next," Guess said.

With its fiber-optic network and a solid partnership already in place, Charter will be there to help the Jackson County School District make that journey.