

# BELDEN

SENDING ALL THE RIGHT SIGNALS

## Forsyth County Schools

Innovation, cost effectiveness  
and simple installation led  
Forsyth County Schools to  
Belden when it needed to lay  
a solid foundation for smart  
classrooms



Our End-to-End Expertise  
Your End-to-End Solution







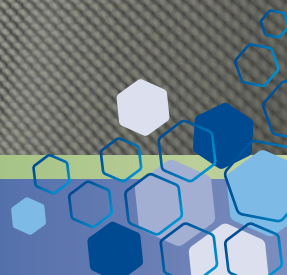
# Customer

As the largest employer in Forsyth County, GA, and Georgia's seventh-largest school district, Forsyth County Schools serves more than 46,000 students and employs 5,000+ staff members. Since 2001, the district has experienced 170% student-population growth, building 21 additional schools to bring the district's total to 37 facilities (with two more opening in 2018).

Forsyth County's impressive development has earned it the title of one of the nation's top 11 fastest-growing communities, bringing highly motivated students from all over the world to its classrooms. To support forward-thinking technology initiatives for these students, the Forsyth County Schools IT team consists of three units: Information Systems,

Instructional Technology and Technology Services. The Technology Services Department is responsible for meeting district technology needs in an effective, efficient manner.

The department believes that effective use of technology increases productivity, encourages learning leadership, expands access to resources and develops digital citizenship. The team of 25+ employees supports more than 27,000 student Chromebooks; 5,000 teacher laptops; 57,000 additional devices brought by students and teachers to school every day (phones, tablets, etc.); 360 physical and virtual servers; 1,800 wireless access points; and 1,300 network switches.





# Challenge

When thinking about the future, Forsyth County Schools' Technology Services Department wanted its cabling infrastructure to lay a solid foundation for smart classrooms. Forsyth County Schools Superintendent Dr. Jeff Bearden, the Board of Education and CTIO Mike Evans decided to prioritize this initiative, voting to install new cabling infrastructure, switches and wireless access points. "They understood the importance of designing classrooms for the future, and that we can't have holes and gaps in our wireless coverage," says Tim Fleming, director of technology services at Forsyth County Schools.

Historically, classrooms offered up to six network drops for desktop computers in the back of the room, and two or three additional drops in the front for teacher-related devices. With the district's rapidly increasing reliance on wireless networking, however, its infrastructure began to be viewed differently. To address the demands for a more robust wireless infrastructure, the Technology Services Department needed two drops in each classroom dedicated to servicing wireless access points (WAPs), with the pair being logically bonded to provide an aggregate of 2 Gbps to each WAP.

"We view wireless as our most important feature," says Fleming. "A crucial part of making sure our wireless is updated and high end is having more wire. We wanted to put more cable in our classrooms to create a better wireless environment – cable that we could pull now and that would last us 20 years or longer."

The requirement for this upgrade was driven by online testing. To ensure that the project would be completed before this critical assessment in April 2018, the project needed to begin in September 2017. The logistics of this large installation would be a challenge if the right cabling solution and installer weren't chosen. A hiccup on either front could be disastrous.

This meant that the cabling and connectivity solutions needed to be readily available in large quantities, and the installer needed to work with rigid scheduling restrictions and pull cable during certain times of the day (including nights and weekends).

"Budget mattered as well," says Fleming. "We needed a manufacturer that could provide the most bang for our buck. We have to use taxpayer money as responsibly as possible, making every dollar count."







# Discovery

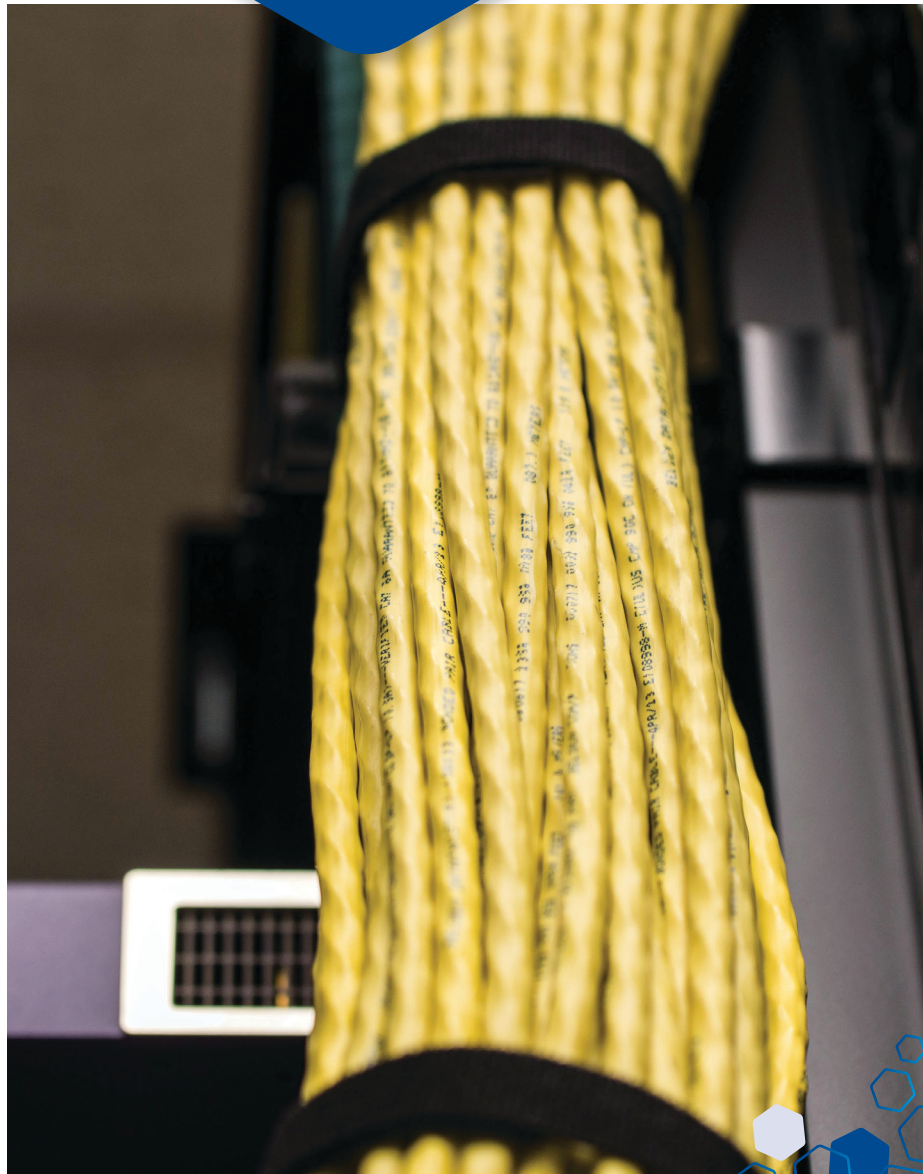
Looking for a cabling and connectivity solution that was innovative, cost effective and fast and simple to install is what led Forsyth County Schools to Belden. The district wanted a warrantied cable that would last – along with the reassurance in knowing that the chosen installer would be trained and certified in installing the cable quickly, cleanly and correctly.

“We liked Belden because we could work with them to make sure the installer was certified – and that they would test the classroom drops after they were installed,” says Fleming. “Belden matched exactly what we needed: high-end cable, impressive warranties, certified installation and innovative technology. They had the right product and came in at a great price point.”

By working closely with the Technology Services Department, Belden was also able to offer color-coded cables to match the district’s labeling, differentiating its wireless cables from cable drops.

Furthermore, Belden was able to meet tight turnaround times so that Forsyth County Schools could begin its project in September and have it completed the following April, with two drops installed and tested in each school’s classrooms and common spaces. “I’ve been in districts where that hasn’t been done,” says Fleming. “Cabling installation would be finished, and you’d later discover 25 drops that didn’t work because no one had tested and certified them.”

**“Belden matched exactly what we needed: high-end cable, impressive warranties, certified installation and innovative technology.”** - Tim Fleming, Director of Technology Services at Forsyth County Schools





## Solution



Belden 10GXS Category 6A cable was used to establish two drops in each classroom across the Forsyth County Schools district. By pulling two cables, the district now has redundancy. If one switch fails, a second switch keeps things running.

The selected installer – TechOptics – was certified by Belden to pull cable correctly and efficiently. Based upon each school's specific class schedule, crews ran when they could during the daytime; the rest of the work was completed on nights and weekends to make sure that the district's nearly 40 schools were cabled in a short amount of time.

The new REVConnect Connectivity System from Belden, which supports Category 5e through Category 6A shielded and unshielded connections, was selected to speed up installation, limit rework and retesting, and ensure fewer failures in the field.

REVConnect will also save time for the Technology Services Department; it offers an easy way for district technicians to fix problems as they arise. For example, if a student inserts something in a drop that shouldn't be there, causing damage, another end can be installed quickly by someone internally.

Patch panels and patch cords from Belden were also used throughout the re-cabling project. By using PoE switches, PoE injectors for phone and wireless access points were eliminated, saving the district money and installation costs.







# Results

“We’ve set the stage for great things to happen in the classroom, and taken away the concern about having only four or five computers in a classroom. We’ve made it unlimited so everyone can have access.”

- Tim Fleming, Director of Technology Services at Forsyth County Schools

Forsyth County Schools now has cabling infrastructure that supports two 10G networks running to every single school in its district – all installed between September and April to meet non-negotiable deadlines.

“On any given day, we have 86,000 unique devices accessing our wireless,” says Fleming. “We’ve set the stage for great things to happen in the classroom, and taken away the concern about having only four or five computers in a classroom. We’ve made it unlimited so everyone can have access. It’s not something our teachers or students have to think about, wish for or be disappointed that they don’t have. With these systems in place, we are building for the future. We have high-end cable that can push the amount of traffic that will be required.”

As the amount of necessary classroom throughput increases, the district will be ready. If access points in the future are 5G, 7G or even 10G, the cable will continue to perform without a problem.

Thanks to REVConnect, the district also anticipates saving money and time in the future. “Five or seven years down the road, when we have to replace things, we won’t need to call someone back to do it for us,” says Fleming. “If we decide we don’t want 2G to every wireless access point, we can easily make those changes ourselves.”



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