IT Infrastructure Services

- Enterprise Networking
- Data Center Operations
- Unified Communications
- Transformational Projects
- Multi-location Hardware Support

Results

- Single Avaya-based network platform
- Increased bandwidth 10x
- Reduced power consumption by 32%
- Improved protection with 450 uninterruptible power supplies
- Reduced rack space in 450 closets
- Zero failures at start up
- Project completed 10 days ahead of an already compressed schedule

Client Profile

The client is the largest school district in the Commonwealth of Kentucky and fifteenth largest system in the United States. It serves more than 100,000 students across 172 district sites, including elementary, middle, special education, high school and administrative facilities.

The district had recently upgraded its core network with an Avaya cloud-based architecture throughout six administrative locations. But a much-needed upgrade to its wireless networks and an increasing need for a BYOD mobility solution drove the district toward an overhaul of its decade-old network infrastructure – one of the oldest and among the least efficient school networks in the Commonwealth.

The Challenge

Not surprisingly, the advancing age of the district's network infrastructure led to a greater number of performance issues and repairs. In addition, the geographic expanse of the network – more than 170 locations and 450 data closets throughout the district – would require meticulous coordination and logistical planning prior to and during upgrades. Finally, since day-to-day school administration, teaching and learning depended upon unflinching uptime, the project timeline would have to be compressed into the district's 10-week summer break.

An upgraded network infrastructure would immediately address four specific needs:

- **Dependable Network** – The current network was unreliable and had no built-in redundancy. Moreover, each new school year routinely began with technical issues that compromised the network at several schools throughout the district.
- **Bandwidth** – With more than 120,000 users accessing the network every day, the district needed more bandwidth than its 1GB connection between the infrastructure's core and aggregate layers.
- **Wireless Access and Dependable Voice Network** – With the proliferation of mobile devices, the district needed to improve wireless access for business and educational purposes. Additionally, the district was in need of a more reliable, cost-effective phone system.
- **Student Safety** – The client wanted to enhance student safety on buses with the use of video surveillance cameras. The current network would not support the transfer of large video data from buses to the network.

The Solution

The client, along with engineers from Pomeroy and Avaya, began project planning and network design in the spring, with implementation commencing at the start of the summer break. Pomeroy dedicated 10,000 square feet of space for the configuration team to process more than 400 pallets of new equipment. Four specially retrofitted vans were used to safely and securely transport new switches throughout the district, without a single device being damaged during delivery. In order to meet the challenging timeline, Pomeroy utilized four teams of installers and dedicated logistic professionals to convert 16 schools per week.

The solution included:
- Increased bandwidth from a 1GB connection to 10GB capacity, providing support for cloud-based applications and higher data demands, such as school bus video file transfers.
- Reduced energy consumption with Avaya 4800 switches, featuring Power Over Ethernet (POE) technology.
- A new VOIP telephone platform and WAN backbone using Shortest Path Bridging (SPB), a redundant protocol that intelligently routes information through the network with no loss of voice, video or data. SPB technology uses Avaya's VENA architecture, and the WAN backbone features Avaya VSP4000 and VSP7000 switches.
- Additional wireless access points to address mobile devices and BYOD demands.
- Reduced hardware and rack space demands.

The Results

The project became the largest Avaya SPB implementation in the world. Pomeroy's leadership during the design and implementation phases and Avaya's innovative hardware solutions helped transform the client's unreliable legacy network, improving bandwidth, functionality and reliability. Results include:
- Increased available bandwith 10x over previous capacity
- Reduced power consumption by 32% utilizing POE hardware
- Improved hardware protection with the use of uninterruptible power supplies in each closet
- Reduced rack space in 450 closets
- Zero failures reported at the time of conversion, and all facilities had fully functioning networks and telephones for the entire first week of the school year.
- Completed the project 10 days ahead of the 10-week deadline, with enough time to transition administrators and teachers prior to the start of the school year.
- Delivered a single Avaya-based network, as opposed to the multiple-platform network that had previously existed.

The Value

Pomeroy delivered a massive network redesign under extreme time constraints. The resulting solution transformed a decade-old network into an efficient and scalable platform that will serve administrators, teachers and students for years to come.