Georgia School System Gives Quantum IP-Based Network A+

HIGH SCHOOLS

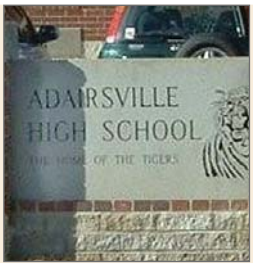
Campus-Wide Systems

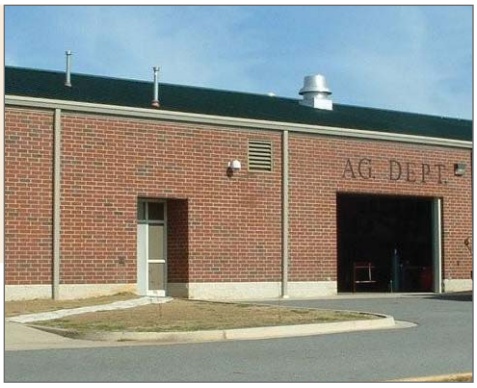
ADAIRSVILLE HIGH SCHOOL

Adairsville, Georgia

The Challenge

- Stop ongoing lightning-related paging system disruptions
- Eliminate expensive replacement of damaged wiring
- Add flexibility and scalability to school and district telecom system





The Situation

With almost a thousand students utilizing the seven buildings spread out across its beautiful Bartow County, Georgia campus, Adairsville High School relies heavily on its paging and bell schedule system to keep everything running smoothly. But whenever there's a thunderstorm, the administration has had to keep one eye on the sky for lightning because a single strike – even several miles away – would often disrupt communications by using the underground copper wiring as a conductor, shorting out various components and shutting down critical pages and bell schedules.

The problem stemmed from the original installation. When underground cabling was installed that was not rated for underground or wet condition use, it quickly began to deteriorate to the point where system failures happened routinely. Numerous false call-ins from one remote building were so frequent the paging system had to be disconnected. The situation grew so bad that the county was soliciting quotes to have almost 30 thousand feet of underground cabling replaced with properly rated cabling for all their low-voltage systems.

The Solution

Fortunately, the Bartow Country School District had previously installed a 144-zone Bogen Multicom 2000 Administrative Communications System (MC2K) so Bogen's Southeast Regional Sales Manager Jeffrey Van Robertson suggested that a more cost-efficient solution would be to upgrade their system with the Bogen Multicom Quantum IP, a network-based communications solution that would enable the school to utilize its existing underground fiberoptic LAN backbone instead of having to replace thousands of feet of defective copper cabling. "We eliminated all the underground copper cabling," said Van Robertson. "No more inter-building intercom cabling, everything runs on their fiberoptic data network, so no more lightning interference."

The Quantum IP is the ideal solution for growing school districts looking for flexibility and scalability in their communications networks. Quantum is backwards compatible so it can be easily retrofitted to an existing Multicom system. "A Multicom 2000 system can accommodate up to 240 stations," stated Ernie Ketterer, Vice President of Product Development. "With Quantum, that system can be expanded to 16,000 stations – classrooms, administrative offices, wherever a location that needs to send or receive a page is located – using 'nodes' that can be interconnected throughout the existing facility."

Quantum uses a distributed system architecture that features nodes at appropriate locations throughout the facility; in this case, five 24-zone Quantum compact systems located in Adairsville High's vocational tech building, the performing arts center, main gymnasium, auxiliary gymnasium, and field house. The sixth node is an upgraded Multicom 2000 headend with a new Quantum

BOGEN

processor card in the main administrative building. “We were able to gut the existing Multicom system and build three 24-station nodes from pieces of the existing rack, so we only had to add two new QCR24 compact 24-station nodes. Then we just swapped out the microprocessor at the headend,” stated Van Robertson.

The system installation was handled by Hogg Technology Systems, Kennesaw, Georgia. CEO Jason Hogg agreed wholeheartedly about replacing the school’s faulty copper-wired system with an IP-based paging system running over optical fiber. “The old buried conduit was too small to hold all the necessary properly-rated cabling. That meant it would all have to be dug up and replaced with larger conduit before new cabling could be pulled. With the Bogen Quantum IP, we could just bypass the old conduit altogether and instead utilize the fiber backbone already in place.”

Because Adairsville’s new Quantum communication system features six nodes located in each of the out buildings, all of the individual paging locations in each building could be terminated internally at their respective nodes. According to Hogg, all the copper cabling could simply be cut where it exited the building and a single fiberoptic cable run to the fiber backbone, eliminating thousands of feet of cabling and greatly simplifying the installation and wiring. The only parts of the system that were kept were the main and secondary clocks because the low voltage components were already in place and required only minimal rewiring.

“We’ve recommended and installed Bogen Multicom 2000 systems for years,” commented Hogg. “We thought it might be complicated to install the newer Quantum IP system, but it actually went smoother than we had anticipated.”

Eventually, the school district plans to connect the Adairsville High campus to the district LAN network. Once that occurs, administrators will be able to place point-to-point calls between facilities within the LAN-connected district as well as make all-call announcements to a single facility or throughout the entire district.

System Highlights

The Results

"We just love the new system," said Patsy Sutton, administrative assistant for Adairsville High School. "In the administrative office we used to have just one phone at the front counter for paging; bell scheduling was a programming process done through the administrative phone that no one except me could do. With the new Quantum system, I can control the bell schedule, do the programming right on my computer, and it's easy enough for anyone to do."

"It works like a charm," confirmed Van Robertson. "The entire installation was done over the Christmas break. In just 7 days we pulled out over 30,000 feet of underground cabling, disassembled the intercom system, switched over hundreds of cables at the main headend, installed six nodes, programmed the system, and tested over 144 stations. We started the day after school closed and Patsy was programming bell schedules on her desktop the day it reopened."

Bartow County Director of Information Technology, Patsy Dorrough, sees a bright future for the Quantum Multicom IP solution in the Bartow County school district. "Jeff Van Robertson and Bogen Communications showed us how we could afford a completely new, IP-based paging system for just a little more than it would have cost to replace just the copper wiring in our old system," observed Dorrough. "And we got so much more – there are features in the Quantum we haven't even explored yet."

"The Bogen Quantum is now our preferred paging system," Dorrough added. "We're planning on integrating it into a new 2000-student high school and hope to use it at a district-wide level."

System Highlights

Upgrading Adairsville High School's Multicom (MC2K) paging and intercom system to a six-node Bogen Quantum IP-based communications network increased the number of available stations while eliminating over ten thousand feet of copper wiring, underground conduit, and the expense of trenching and installing new copper cabling.

The highly scalable system provides nearly limitless expandability – up to 16,000 stations per facility – and backwards compatibility enabled the school to utilize all the components of their existing Multicom system with minimal additional hardware.

Quantum
MULTICOM IP

Equipment List

Main Administration Office:

Original headend was downsized to a 24-station node.
1 Bogen Quantum Processor Card (QSPC1)
1 Bogen Quantum Card Cage Grille (QSGR1)
1 Bogen Admin Phone Firmware Updgrade (MCDS4SW)
1 Bogen Wall Display Firmware Upgrade (MCWDSW)

Vo-Tech Building:

Re-use one switchbank with Analog and Station Card ribbon cables taken off existing headend rack.
1 Bogen Quantum Processor Card (QSPC1)
1 Bogen Compact Rack Chassis with Cooling Fan (CRC)
1 Bogen Quantum Grille for CRC (QSGC1)
1 Bogen Power Supply (MC512A)
1 Bogen Right-Angle Power Cord for MC512A
1 Bogen 26V DC Power Supply (MC2626B)
1 Bogen Power Strip (ACFDS)

Performing Arts Building:

Re-use one switchbank with Analog and Station Card ribbon cables taken off existing headend rack.
1 Bogen Quantum Processor Card (QSPC1)
1 Bogen Compact Rack Chassis with Cooling Fan (CRC)
1 Bogen Quantum Grille for CRC (QSGC1)
1 Bogen Power Supply (MC512A)
1 Bogen Right-Angle Power Cord for MC512A
1 Bogen 26V DC Power Supply (MC2626B)
1 Bogen Power Strip (ACFDS)

Main Gymnasium Building:

Re-use one switchbank with Analog and Station Card ribbon cables taken off existing headend rack.
1 Bogen Quantum Processor Card (QSPC1)
1 Bogen Compact Rack Chassis with Cooling Fan (CRC)
1 Bogen Quantum Grille for CRC (QSGC1)
1 Bogen Power Supply (MC512A)
1 Bogen Right-Angle Power Cord for MC512A
1 Bogen 26V DC Power Supply (MC2626B)
1 Bogen Power Strip (ACFDS)

Aux Gymnasium/Natatorium Building:

1 Bogen 24-Zone Compact System (QCR24)

Field House Building:

1 Bogen 24-Zone Compact System (QCR24)

Key Products

QSPC1
Quantum Processor Card

QCR24
24-Zone Compact System

QSGR1
Quantum Grille for MCRMF Card Cage

CRC
Compact Rack Chassis (Rear View)

QSGC1
Quantum Grille for QCR/CRC Compact Chassis

BOGEN®
COMMUNICATIONS, INC.
50 Spring Street, Ramsey, NJ 07446 USA
Tel: 201-934-8500 • Fax: 201-934-9832
www.bogen.com

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