

## CASE STUDY: BALDWIN SCHOOL DISTRICT

### Foundry Earns Top Scores at Long Island School District



#### SUMMARY

In 2004, the residents of Baldwin, New York, passed a \$26.2 million school bond for educational improvements in the Baldwin Union Free School District (UFSD). The school district allocated a portion of the voter-approved funds to upgrade the district's network infrastructure. With the hard-earned funds secured, Baldwin UFSD faced a critical technology purchasing decision: Who could best help them build a first-in-class network that would better support the 6,500-person user community and an expanding list of administrative and educational applications.

#### OBJECTIVE

Baldwin UFSD sought a network design and robust networking equipment that would serve the school district for many years to come. Director of Technology Sandy Freiberg, IT Manager Robert Bowen, and IT Specialist Dominick Labruzzo wanted to protect Baldwin UFSD's network investment.

"We needed a network design that would avoid expensive, periodic line card changes that barely keep pace with our network growth," says Bowen. "We wanted to get the most bang for our buck by purchasing equipment that would last from five to seven years."

In addition to long-term product support, Baldwin UFSD wanted a high-performing network infrastructure that was based on open standards, could be managed easily, and allowed network traffic visibility. Like most school environments, the infrastructure must route IP and AppleTalk traffic across the network. Bowen needed the ability to understand the traffic patterns and activity in this mixed environment.

"With the previous network, we had limited visibility as to what was going on. The network traffic would slow down, or crash, and we had no way to figure out what was causing the problems," says Bowen. "Performance was also poor. Transfers between servers and clients took forever."

To accomplish the district's networking goals, Bowen wanted to work with a team that would respond quickly to calls and deliver first-class support long after the initial sale. He also demanded technical expertise. Bowen teaches an advanced networking class at a local branch of the State University of New York, so he was looking for technical competence, not marketing hype.

#### SOLUTION DESCRIPTION

Baldwin UFSD selected a robust set of networking devices from Foundry Networks. "After basic comparisons of speeds and feeds, Foundry easily came up the winner," says Bowen.

To boost performance, the district upgraded to 10-Gigabit Ethernet (10-GbE) between buildings and one Gigabit Ethernet (GbE) to the desktop. Foundry BigIron® RX-4, FastIron® SuperX, and FastIron Edge X Series switches replaced Cisco devices throughout the Baldwin UFSD network. Two BigIron RX-4 switches deliver data and video through the network core with a packet forwarding capacity of 286 Mpps while FastIron SuperX switches serve traffic from all large wiring closets with a total switching capacity of 510 Gbps and a forwarding rate of 304 Mpps. The FastIron Edge Series carries the VoIP backbone traffic.

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#### INDUSTRY

Education

#### COMPANY DESCRIPTION

Located in Nassau County on the south shore of Long Island, New York, the Baldwin Union Free School District serves a population of approximately 34,000 residents. The school district has seven elementary schools, one middle school, and one senior high school where a professional staff of teachers, supervisors, and administrators educate approximately 5,500 students.

#### OBJECTIVES

- Upgrade network to improve performance for 6,500-plus user community
- Eliminate network crashes
- Support bandwidth-intensive applications, such as video streaming
- Deploy a high-performance network that is robust, secure, easy-to-manage, and scalable

#### SOLUTIONS

- Foundry BigIron RX-4, FastIron Edge X Series, FastIron SuperX, IronPoint 200 access points, and IronView Network Manager deliver robust performance, reliability, and scalability to the school district's demanding user population
- Leased dark fiber, lit by Foundry equipment, links all buildings
- IronView Network Management eases switch administration and management of more than 35 network devices

#### RESULTS

- Increases bandwidth capacity to 10 Gigabits at network core and 1 Gigabit to desktops
- Boosts network performance more than four-times faster than previous network
- Reduces cost due to eliminating GbE trunk lines and decreasing power consumption by 30 percent
- Eliminates network crashes
- Allows easy integration with existing network management and monitoring systems
- Improves ease of management and allows IT to track traffic flows and end-user activity
- Helps IT team proactively prevent security threats by monitoring traffic flows through sFlow and Snort

The district's high school and middle school will have full wireless capabilities through 100 IronPoint® 200 access points and Sygate Secure Enterprise. During the summer, the elementary schools will receive 60 access points, which will provide wireless access in gymnasiums, auditoriums, faculty rooms, and other common gathering areas. For enhanced management capabilities and network security, IronView® Network Manager applies sFlow technology plus Snort to monitor network transmissions and alert the IT team of any unexpected spikes or potential threats.

The Foundry-based network supports a 6,500 user population, 1,600 clients, and 35 servers, and it gives the school community access to email, Internet, video streaming, and file/print services. Leased dark fiber, lit inexpensively and reliably via XFP optics in the Foundry equipment, links all the buildings to multiple campuses, eliminating the need for SONET or DWDM equipment.

## THE RESULTS

The Baldwin UFSD IT team and users give the enhanced, Foundry-based network top marks. After deploying the upgraded network, Baldwin UFSD gained significant performance improvements. "We gain core switch-like performance, functionality, and stability in a closet switch, and the network is at least four-times faster than the previous one," says Labruzzo.

Based on the network's improved performance and capabilities, Bowen expects to add new applications, such as video streaming, online document management, network-based backup, and a digital library. "With the previous network I would not have been comfortable introducing these types of applications because their bandwidth demands could have taken down a mission-critical application," he says. The enhanced network can easily support these applications—and more.

Bowen is also pleased that the new network should have a positive impact on the district's budget. Energy consumption is expected to drop significantly. When compared to the district's previous network, total wattage requirements for the new Foundry-based network are about 30-percent less, and the Foundry architecture allows Baldwin UFSD to build multiple 10-GbE links at a lower cost than purchasing single GbE trunk lines.

Along with better network performance and reduced costs, the Foundry IronView Network Manager (INM) eases network management and configuration, and the command-line interface (CLI) is a breeze to learn and use. The technology department at Baldwin UFSD has five full-time staff that support everything from desktop clients, network devices, to applications. With fewer network hassles, Bowen and staff are freed up to deploy new applications and provide additional services to users. "If the network was not so easy to manage, we would not have been able to support complicated projects such as rolling out Citrix to give teachers remote access to files and applications," explains Bowen.

Baldwin UFSD can deploy these new systems with confidence because they know the network is secure with zero-hour, zero-day protection. INM protects the network from intrusions by combining sFlow, an industry standard for real-time traffic monitoring, and Snort, an open source industry standard, to detect, report, and thwart network attacks. SecureIron protects against distributed denial of service, synflood, and other internal and external threats. The combination of authentication and remediation in Sygate Secure Enterprise, plus the 802.1x authentication in the IronPoint 200 access points secures the wireless network.

From installation to implementation, the Foundry equipment has performed flawlessly—passing each and every one of the district's demanding tests. The standards-based devices easily interconnected with other network systems and management tools so that Baldwin never experienced any downtime.

"We designed this network so that we could grow into it," says Bowen. "Because Foundry stands behind its products, we know this network will be able to support our changing needs well into the future."

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— Robert Bowen,  
IT Manager,  
Baldwin Union Free School District

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