Case Study

From Construction Zone to Connected Classrooms:

How CTS Helped Expand and Build a Cost-Efficient, Fully Standardized Network for a Growing Charter School

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Overview

As part of their ongoing expansion, our client - a network of charter schools operating in The Bronx, NY, and Connecticut - partnered with CTS to extend their classrooms to a newly developed basement level.

The project required a full-scale technology and network build-out to deliver reliable connectivity, standardized systems, and maximum cost efficiency by strategically repurposing existing assets.

Project Scope & Objectives

The project's goal was to design and implement a secure, scalable network infrastructure in the newly renovated basement space. CTS achieved this by repurposing a significant portion of the client's hardware from another location. This optimized performance while reducing overall cost to the client.

The project included a wireless network refresh on the 1st floor. This replaced aging Ubiquiti wireless access points (WAPs) with Meraki WAPs to ensure a consistent, high-performance, and easily managed wireless environment across locations.

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Project Scope & Objectives

The scope also included running over 50 CAT6e cables and a fiber run to interconnect the network closets, as well as the installation and configuration of:

- Meraki switches and over 40 Meraki wireless access points (WAPs)
- A new 64-channel network video recorder (NVR) to handle the expansion of the camera system
- The expansion of the Public Announcement (PA) system and configuration of new zones for broadcasting
- IP phones and projectors for twelve classrooms and offices

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Solution & Deployment

During the design phase of the project, CTS reviewed the client's entire infrastructure to determine what hardware could be safely repurposed from another location and smoothly integrated with existing technology. This resulted in the reuse of phones, projectors, PA speakers, televisions, switches, an uninterruptible power supply (UPS), a power distribution unit (PDU), and wireless access points (WAPs). The accumulative savings in hardware costs were ~ $60k – $70k. The client was made aware that a portion of this hardware was close to end of life (EOL), so CTS also scheduled follow-up meetings with the client (post-project) to formulate a budget replacement over the coming years.

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Solution & Deployment

This buildout required the installation of a secondary network closet [also known as an Intermediate Distribution Frame (IDF)] in the basement to connect all the newly installed equipment to the Main Distribution Frame (MDF) on the first floor. CTS collaborated with the General Contractor to ensure the installation proceeded smoothly and did not interfere with the work of the other vendors. For security, CTS installed a new 64-channel Network Video Recorder (NVR) to accommodate additional cameras for the basement.

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Solution & Deployment

The client had been experiencing ongoing connectivity issues with their wireless network on the first floor because of aging equipment. CTS scoped that the 33 Ubiquiti WAPs on the first floor would be replaced with new Meraki WAPs. This not only aligned the wireless infrastructure with their other locations but also allowed the installation of the repurposed 14 Meraki WAPs in the basement.

Following deployment, the entire network was onboarded to the CTS Service Delivery team for proactive monitoring and ongoing operational support. This included the completion of an updated network diagram, the deployment of device monitoring software, and the creation of a hardware inventory/labeling system.

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Key Challenges & Findings

As with most schools, the only available time to complete a project of this magnitude was during the summer months (June – August) when school was closed to students. With the first day of school being slated for mid-August, the timeline was tight!

CTS collaborated with the client on technical design during the Spring (April – May). This went through several iterations and provided the client with a clear budget. After receiving budget approval from the school, the project officially kicked off at the beginning of July 2025.

Key Challenges & Findings

However, due to ongoing construction, CTS was unable to get into the space to complete the work until the last week of July. Fear not, the team worked diligently and quickly.

During the project, CTS quality assurance tested each piece of repurposed equipment to ensure stability. Unfortunately, several of the IP phones were unusable due to pre-existing damage. This resulted in these phones and their respective mounts needing to be replaced less than two weeks before school opened. After alerting the client, CTS drafted a change order within 24 hours for the new phones, worked with the client to source replacement mounts, and had this installed/tested before opening day.

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Key Challenges & Findings

A single security camera was installed in the hallway instead of the stairwell due to a change in the floor plan. Thankfully, this was discovered during the last week of the project. CTS worked with the General Contractor to relocate this camera, ensuring visibility in the stairwell prior to school opening.

On the first day of school, CTS deployed an engineer onsite to provide Day One Support. This ensured that both students and staff had a champion on-site to provide hands-on assistance on such a critical day.

Results & Impact

This expansion project delivered measurable benefits across the organization:

- **Deployed in a fully standardized network environment, ensuring reliable connectivity across all locations.**
- **Extended wireless coverage with next-generation Meraki WAPs, improving connectivity and simplifying network management.**
- **Achieved significant cost savings by repurposing existing hardware, maintaining performance while reducing expenditure.**
- **Identified critical maintenance and infrastructure improvement opportunities to inform future planning and optimize long-term operations.**
- **Classroom technology and network infrastructure were fully operational 1 week before the first day of school.**

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Conclusion

This Network Expansion demonstrates how strategic planning and smart asset repurposing can deliver high-value, cost-effective IT infrastructure. CTS's end-to-end approach - from design and deployment to thorough documentation - ensures the client's new space is fully operational today and ready to scale for tomorrow.

Questions?

Contact CTS directly through our website:
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