Industry

- K-12 Education

Environment

- 42,000+ students
- 42 schools in the district
- 28 elementary schools
- 9 middle schools
- 5 high schools
- 40,000+ student and faculty devices
- 3,850 access points

Technology Needs

- A hardware refresh was on the horizon
- Wave 2 APs for greater bandwidth were required
- CapEx costs were preferred over OpEx costs

Extreme Solution Components

- ExtremeSwitching™
- Extreme Management Center™
- ExtremeMobility™

Results

- Eliminated the need to hire additional staff
- No unanticipated outages or issues
- Network staff able to refocus efforts toward quality of education
- Improved trust in technology and IT among leadership

Network Upgrade at Humble Independent School District Sets Students Up for Success

Humble Independent School District is one of the largest in the state of Texas, covering over 90 square miles. It serves the city of Humble, select parts of the city of Houston, and parts of unincorporated Harris County. Humble is also one of the fastest growing districts in the state of Texas, currently operating 28 elementary schools, 9 middle schools and 5 high schools with over 42,000 students. Plans for a new middle school, as well as a new elementary school, are on the horizon.

Technology has become indispensable to the modern K-12 curriculum, and the faculty and students of Humble wanted to maximize their use of technology within their schools to enhance and personalize the education experience. Unfortunately, persistent network failures were making this difficult, and the time had come to evaluate a major upgrade to the network infrastructure.

Humble School District's network covers a significantly large geographic area. With one of the five high school enclosing 500,000 square feet, it's easy to imagine that the geographic area of the entire school district reaches into the millions.

At the same time, the infrastructure department for the school district is very small, comprised of only eight people. One staff member covers VoIP, two are general IT technicians, and only five manage the entire network.

Technology decision makers and faculty alike felt that zero downtime should be nonnegotiable in the educational environment—even a 15-minute outage is too disruptive in the classroom. With such a small staff and an aging network, the uptime Humble was looking for had become impossible to achieve.

District Aims to Make Technology an Enabler of Education

 "When I started here, I spoke with hundreds of employees to gather information about the problems they were having," said Dustin Hardin, executive director of technology at Humble Independent School District. "Time and time again, teachers said they wanted to use more technology, but every time they went to actually do a lesson plan with tech integrated into the curriculum, the technology would fail, and it was the network—constantly."

At Humble, it seemed to the IT staff like the network went down when they so much as looked the wrong way. Every day, teachers had to create one lesson plan when the technology worked and another when it didn't, and many just gave up because the unreliability was so persistent it wasn't worth investing the time.

"Most of our switches were 10x100, and whenever you have voice, plus data network connections, application delivery is just nonexistent—and that's when the network was actually working. So bandwidth was a whole different problem. Faculty from all campuses would call us every couple of days with outage problems, so we needed to find a better way," said Abramson, a Senior Network Engineer at Humble ISD.

Sights Set on Reliable, Fast, Easy-To-Manage Network

It was clear that the teachers needed to be empowered to deliver their lesson plans supported by the right technology, so Humble began their search for a better network provider.

"We were basing our decision largely on manageability, reliability, cost, and speed," Hardin explained. "We looked at how things would stack together, and Extreme made sense for us. With Extreme we would have the ability to manage eight switches in one stack, which was going to cut down on switch management time and effort significantly. We needed our solution to be interoperable as well, as some of our equipment is from other vendors. Finally, cost and tax payer dollars were major factors."

Humble engineers were particularly excited to witness the speed of Extreme; a billion packets per second peaked their interest. Gaining the ability to future-proof their district and eliminate bandwidth concerns would be a previously unheard of luxury.

"I look at everything holistically," Hardin said. "Extreme is a networking company. Other players have gone into servers and storage and all these other areas, but Extreme is focused sharply on the network, making sure you can be interoperable with everything out there, and we don't have to buy extra components to make things work. That's what really sold us."

Unparalleled Uptime Creates a Recipe for Success

Since partnering with Extreme Networks, Humble Independent School District has been able to transform their network in its entirety.

First, though their IT and networking staff is relatively small, they've had no need to hire additional personnel because network manageability has improved significantly, thanks to Extreme Management Center. This has led to a major reduction in service calls. When there are issues, vendor support is now reliable and accommodating.

"With other vendors we were using, support and its pricing were outrageous. The network team didn't like calling because they couldn't get much help. But when it comes to GTAC with Extreme, they have no problem picking up the phone and calling and getting help and asking questions. The biggest benefit is having equipment that is constantly working. We have a lot of faith that every day it's going to be working and we don't have to call support or maintenance that much. You don't want to be on the phone with them every day because you're having problems. Our break fix occurrences on switches for outages are nonexistent," Sanders, a Senior Network Engineer at Humble ISD explained.

While Humble utilizes several different Extreme solutions, Johnny Glenn, Director of Network and Infrastructure, recognizes that the wired and wireless have made the most impact. "We have a lot of appreciation for your core competencies. You can have all the analytics and bells and whistles, but if you don't have a solid reliable wired and wireless solution, those things don't matter," remarked Hardin.

IT personnel at Humble continue to receive positive feedback on coverage, speed, and device connectivity with the access points that are there.

They've also been able to refocus their energies on higher level problems: most importantly, the quality of education being delivered to Humble students. Today, leadership trusts the technology available to them for the first time.

"It's just a simple, fast solution that has really transformed how the district operates. And, you can't get any simpler than that. We're able to focus on high-level problems: how to truly get more education and technology in the classroom, making sure that the operations department isn't putting out fires every single day. There's excitement in the IT department, we're back to the cutting edge with our network and it makes all the difference in the world," Hardin concluded.

With the challenges of constant outages in the past, and satisfaction with customer service at an all-time high, Humble is now spending much of their time planning to make even more enhancements for the future of the school district. Given the current backdrop of school safety, they're doing everything they can to ensure parents know students are safe, and many of their solutions are based on communication, including IP phones, radios, and door access—all supported by the same network. "That's our big push this year: student safety. Without a safe environment for the kids, nothing else matters," Hardin remarked.

Prepared for the Unexpected

In 2017, Hurricane Harvey hit Humble ISD creating $80 million worth of damage, including 5-7 feet of water in one building. This left them without a data center and down one high-school forcing Hardin and his team to manage the network from home. "It's been nice not having to deal with the problems I had last year with the network just not working most of the time. And all of the things we had to deal with Hurricane Harvey, just being able to take that (the network) concern off my plate has been amazing this year," remarked Hardin.

Plans for the Future

Additionally, this year with the improved network resulting in a decrease in troubleshooting, Humble has been able to work with their HVAC and energy management departments to control and monitor the equipment online including the school's freezers.

They're working toward 100% uptime and are investigating Extreme FabricConnect. Disaster recovery is another significant initiative. Finally, data security and policy implementation are on deck as upcoming projects, as well.

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Dustin Hardin, Executive Director of Technology, Humble Independent School District

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