Cisco NAC Opens Up School Network for Digital Learning

Providence Day School securely extends access to the network.

EXECUTIVE SUMMARY

PROVIDENCE DAY SCHOOL

- Education
- Charlotte, North Carolina USA
- 1528 students, 166 teachers, plus staff and numerous visitors

BUSINESS CHALLENGE

- Centralize network access control and security management
- Provide different classes of users with secure, multidevice access to network resources
- Eliminate network intrusions and virus infections

NETWORK SOLUTION

- Deployed Cisco NAC Appliance along with Cisco 4400 Series Wireless LAN Controllers

BUSINESS RESULTS

- Reliable, automated network security frees up IT staff time
- Users have anytime, any-device access to the network from all classrooms
- School can offer more diverse educational tools and experiences for 21st-century learners

Business Challenge

The independent Providence Day School (PDS) in Charlotte, North Carolina, enrolls more than 1500 students from transitional kindergarten through the 12th grade. A faculty of 166 full-time teachers helps ensure that class size remains small. The school infuses global studies throughout the curriculum, including exchange programs with schools in Asia, Central and South America, and Europe; study trips and projects abroad; a Global Speaker Series, and more.

As at many schools, public and private, the adoption of information technology at PDS started modestly and accelerated rapidly.

"In the beginning, we had two labs with a total of 40 computers and dial-in access to the Internet," says William Stockdale, assistant director of technology at the school. "Then we started a pilot program, issuing laptops to a small group of teachers. Some people got email."

It grew quickly from there. PCs and laptops came to virtually every classroom, along with SMART Board interactive whiteboards, and email became a fact of life in schools as in all organizations. When the administration decided to issue laptops to every teacher as an everyday educational tool, the school's IT staff scrambled to set up a broadband, wireless infrastructure.

"We started with a very simple wireless network, with access points in hallways and whatnot," says Stockdale. "Service was spotty, and there was no security."

Soon came laptops on carts for student use, as well as more and more access points. As the network expanded, so too did the issues around security and reliability.

"We had people taking laptops home, bringing them back infected, and logging on," says Stockdale. "So, of course, we had virus breakouts. Luckily, we were able to detect them because we could see right away how they slowed down network performance."

Still, the mandate was to keep expanding the network.

"My boss was preaching access, and I was preaching security," says Stockdale. "Clearly, it was time to step back, look at what we were doing, and think about where we wanted to go with the network."

Network Solution

Those deliberations led Stockdale to the Cisco® Technology Center at the nearby Research Triangle. Providence Day School was already invested in Cisco technology, including its network backbone, switches, and wireless access points, as well as Cisco 7900 Series Unified IP phones and the Cisco Unified Communications Manager.

"It just made sense to see what Cisco offered for network access control and security," says Stockdale. "If Cisco had a solution, I figured it would make for a simpler implementation and a shorter learning curve."

So he attended a conference at the Cisco center in Raleigh, where he learned about the Cisco Network Admission Control (NAC) appliance.

"Once I understood what NAC could do and make possible," he says, "I thought, 'This will make my boss happy from the access point of view, and me happy from the security point of view.'"

In private schools, no less than public, IT managers must always keep an eye on the budget. For Stockdale and his colleagues, that was actually a good thing, because it forced them to think through their plan for deploying Cisco NAC across their network. As he describes it, the crucial step in their NAC implementation was the planning.

"The engineers from Cisco and our reseller sat down with us and took us through all the decisions we needed to make," he says. "How many users, hours of access, what resources need to be available to students versus teachers, filters, wired versus wireless access points, and all the rest."

> "In a school, money is always an issue, which means staff time is an issue. A secure network that more or less manages itself is a tremendous time-saver."
> **—William Stockdale, Assistant Director of Technology, Providence Day School**

"After that, the implementation itself took less than a week, and we were testing by Wednesday of that week."

With Cisco NAC in place, both Stockdale and his boss are happy: PDS's network is both easy to access for students, teachers, and visitors and secure. Every student and teacher has a personal account, easily set up through a Lightweight Directory Access Protocol (LDAP) server, with access to all the resources that are appropriate to their user profiles. Each student has a secure folder with virtually unlimited storage. Everyone has email.

Applications are not hosted on the network, and students use the school's computers (every department has a "technology cart" with 22 laptops) rather than their own. But when students, teachers, and visitors use any *device* to log on, Stockdale and his colleagues have nothing to worry about. Cisco NAC checks every device for the proper virus protection, the latest service pack, and everything else required to keep the network healthy.

"The real onslaught came shortly after the NAC solution was put in place," says Stockdale, "as more and more students started carrying iPhones and other smart devices. Now those kinds of devices are everywhere on our network. And they are welcome."

Business Results

The secure, orderly network "presided over" by Cisco NAC has allowed Providence Day School's IT staff to continue to extend access to more and more points across the school's 45-acre campus, and has allowed teachers and students to extend the educational uses of the network as well.

"We've got Cisco WebEx® in our classrooms now, so people in different classes can compare papers and notes in real time," says Stockdale. "The kids are using some of Google's online tools. And, of course, they're using blogs and other social media in all kinds of ways."

It's not unusual, he says, for students to continue classroom discussions beyond the classroom, to compare notes, to dialogue with their teachers, all online.

Meanwhile, life is good for the IT staff as well. Integrated with Cisco NAC, a Cisco 4400 Series Wireless Controller enables the IT staff to manage the network from a single point, instead of having to manage disparate access points.

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Next Steps

Looking ahead, PDS's network is ready for just about anything.

PRODUCT LIST

Routing and Switching

- Cisco Catalyst® 3650
- Cisco Catalyst 3750

IP Telephony

- Cisco 7900 Series IP Phones
- Cisco Unity® Voice and Unified Messaging Platform
- Cisco WebEx Conferencing

Management and Security

- Cisco NAC Appliance
- Cisco Video Surveillance
- Cisco ASA 5510 Adaptive Security Appliances (redundant)

Wireless

- Cisco 4402-50 Series Wireless LAN Controller
- Cisco Aironet® 1131 Series Access Points

"It may not be in the immediate future, but I believe we'll become a 'one-to-one' campus," says the assistant director of technology, "meaning that all students will have laptops, and when they bring them to class, naturally, they'll have network access."

Especially if textbooks come to be published digitally, as many observers expect, a network-based model for teaching and learning is inevitable, Stockdale believes. And, as a former teacher himself, he believes that such a model can serve more students, better, than traditional models.

"Kids have different learning styles," he says. "Unlike simply being 'talked at," network-based learning is multimedia, and I think that's much more effective for a lot of students."

"Across the board, education is becoming more digital all the time," he says. "Just like the young people we're here to serve."

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Printed in USA C36-566930-0 10/09