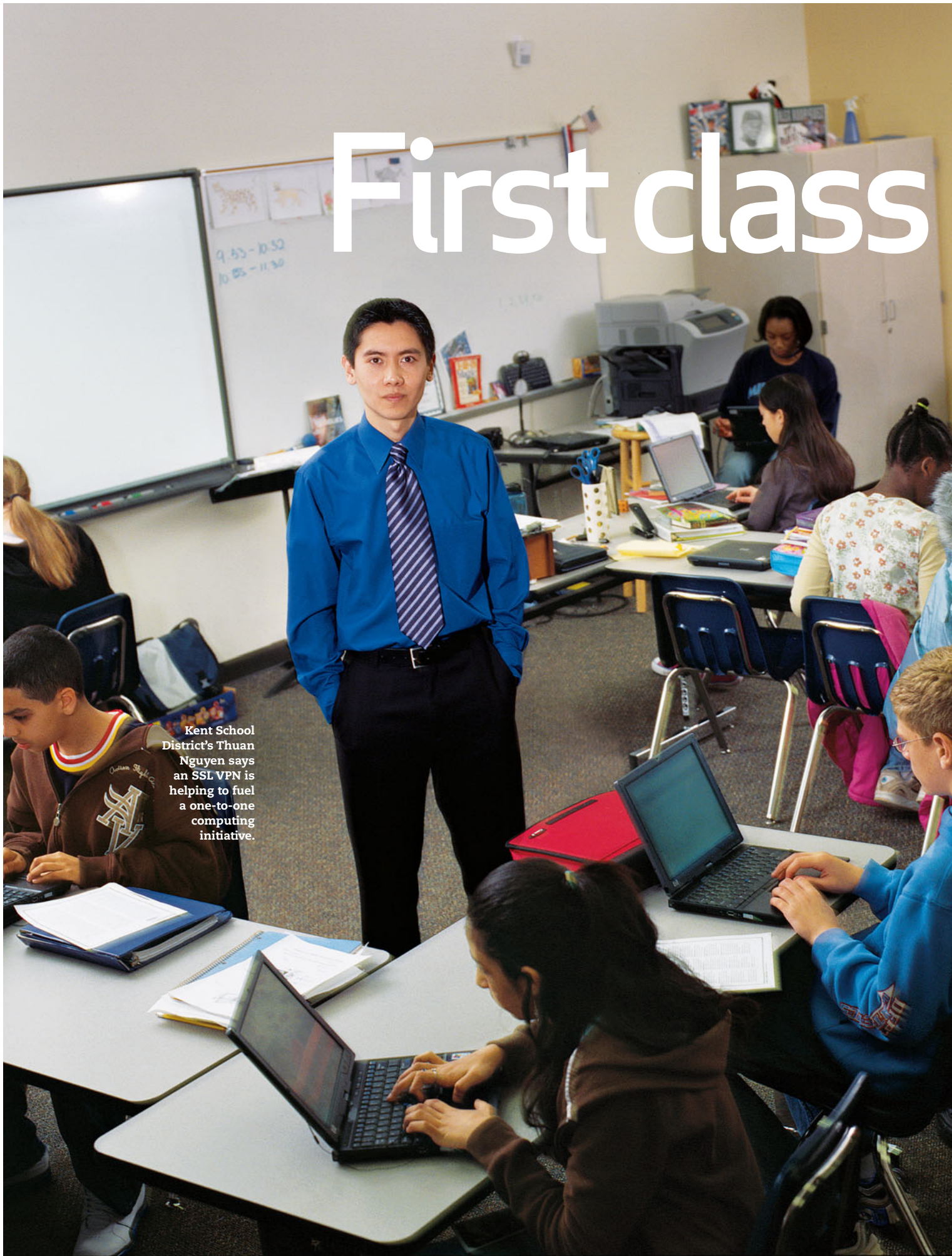


First class

Kent School District's Thuan Nguyen says an SSL VPN is helping to fuel a one-to-one computing initiative.



connections

SSL VPN technology is helping schools in Kent, Wash., realize a bold initiative to make every home an extension of the classroom.



Corporate America could learn a thing or two from the Kent School District (KSD). Located south of Seattle, Kent is a city of some 84,000 people with the fourth largest school district in the state of Washington. The district's nearly 3,200 teachers and administrators are responsible for just under 27,600 students. KSD's bold long-term aim is to give every student, parent, instructor, and staff member remote access to instructional systems and desktop tools via virtual private network (VPN) technology.

BY RICH FREEMAN

Photograph by Amanda Koster

It's a goal familiar to most private-sector executives. In fact, according to Forrester Research, an IT analyst firm in Cambridge, Mass., 77% of large North American enterprises use VPN solutions to keep their employees connected to core applications when they're out of the office.

Alas, most of those solutions rely on IPSec (IP Security), a venerable protocol for securing Internet communications. IPSec VPN systems require specialized client applications that can be difficult to install, configure, and maintain. Moreover, their crude access controls introduce potential security vulnerabilities. In short, IPSec VPN serves up headaches almost as frequently as it does remote connections.

The Kent School District, once an IPSec VPN user itself, learned that lesson the hard way. Unlike many of its business-world counterparts, however, the district found an answer to its IPSec woes: a VPN solution based on Secure Sockets Layer (SSL), the protocol long used to encrypt e-commerce transactions. Safer and simpler to use than IPSec, SSL VPN has utterly transformed KSD's once struggling foray into Internet-era connectivity—and has done so practically overnight.

Removing walls

Remote access is but one element of a broader technology initiative that puts Kent on the leading edge of K-12 innovation. Built around a concept called "one-to-one computing," KSD's plan is to equip all secondary students with tablet PCs that will connect them with everything from course materials to reference works to streaming video and music. Back-end applications will centrally store near-real-time grading information, allowing teachers, parents, and administrators to monitor student performance closely.

It's an ambitious effort. According to Tim Wiley, senior analyst for K-12 solutions at Eduventures LLC, a Boston-based education research firm, lots of districts are talking about one-to-one computing, but few are implementing it. "Any district that's pursuing one-to-one initiatives now, and taking the steps to install a

BY THE NUMBERS:
27,600 students;
3,200 teachers and administrators
GOAL: Reliable and secure remote access

districtwide comprehensive education system, is at the progressive end of what I'm hearing about," he says.

VPN plays a critical role in KSD's vision. Providing access to instructional resources from home "really goes to the idea of removing walls from the classroom and changing the length of the instructional school day," says Thuan Nguyen, the district's director of project management and technical services.

Nguyen is on point for the district's VPN implementation. Unfortunately, the IPSec VPN application KSD initially piloted proved a disappointment. For one thing, end users hated it. "They had to install software on their machines and go through a configuration process," says Nguyen. "From a usability standpoint, it was extremely hard to get that going." Soon, Nguyen's

With FirePass, VPN support calls dropped 90% within weeks.

team found themselves fielding dozens of support calls. "A good 20% to 30% of their day was spent on troubleshooting IPSec issues and figuring out solutions," Nguyen recalls. Eventually, all but the most IT-savvy users simply abandoned the IPSec system.

Meanwhile, security was a concern too. Under IPSec, every remote workstation is connected directly to the network. "Since we don't own the workstation, we have no control over whether it has virus protection, so it could infect other machines throughout the district," says Nguyen. Equally worrisome was the IPSec solution's inability to hide network resources that a given user either doesn't require or isn't authorized to access. That posed two problems, Nguyen explains: "From an end-user perspective, I'm getting something whether I need it or not, which is confusing. From an IT perspective, I'm exposing systems to risk."

Between its security weaknesses and its usability shortcomings, KSD's IPSec-based VPN pilot was headed for a failing grade. "We were never able to get it off the ground," he says.

Amazingly simple

That's when TechPower Solutions Inc., a systems integrator based in Redmond, Wash., introduced Nguyen to SSL VPN. Unlike IPSec-based solutions, SSL VPN systems don't require client software. All users need is their familiar web browser. Plus, SSL VPN gives IT administrators fine-tuned access control.

The technology TechPower recommended was FirePass, an SSL VPN appliance from F5 Networks. "As soon as I saw it I knew it was the solution we needed because of its ease of use," says Nguyen. "The fact that all [users] had to do was go to a secured website to access all their resources was just amazing."

According to Don Abbott, a senior account manager at TechPower, deploying the new solution was a remarkably quick process. "I dropped off the hardware, assisted a little in regards to the IP configuration and the basic settings, and they were pretty much up and running," he recalls. All told, it took two KSD employees two days to set the system up, and another week to test it for stability before initiating a limited production run. "It was amazingly simple," says Nguyen, who notes that the IPSec system took two and a half months to install.

Attracted by its ease of operation—and the 50% improvement in page rendering speeds it delivered—users embraced the new SSL VPN solution. "We started a quick pilot within the district and it caught on very, very quickly," says Nguyen.

"Within a matter of hours, we started getting a ton of users on [the system]." Despite that increased usage, VPN support calls dropped 90% within weeks, freeing up IT resources for other tasks.

The SSL VPN solution plugged its predecessor's security gaps too. By interposing itself between remote clients and the network, FirePass filters out viruses before they can spread to other devices. "That's extremely valuable from a security perspective, because the risk of not knowing what's on a machine is completely gone now," says Nguyen. Additionally, FirePass offers each user a personalized set of network connections appropriate to their requirements and permissions. "When I log in, I get the resources I need and no one else's," says Nguyen. "That level of granularity was not available with the other solution."

Stability has been a strong point for the FirePass system as well. "In the year and a half we've had it, we haven't had to reboot it for any reason," Nguyen reports. As a result, KSD has just one person assigned to maintaining FirePass. "He ends up spending maybe an hour a week on it," Nguyen says.

Engagement and success

Buoyed by the SSL VPN pilot's initial success, Nguyen soon expanded it. At present, most district employees are using the system, along with 90 seventh graders and three teachers at Kent Technology Academy, a small middle school that serves as a test bed for many of the district's high-tech ventures. Nguyen says the solution is helping students and teachers work together more closely and more often. "Teachers are signing into the system at 6:30 or 7:00 at night and meeting students with questions about their assignments," he says.

According to Danielle Pfeiffer, an assistant principal at Kent Technology Academy, that jump in student-teacher interaction is translating into improved classroom performance. "We've seen increased student engagement and success because of the program," she asserts, adding that attendance is also up and discipline problems down.

Needless to say, that has turned parents into big fans of the FirePass solution. "They love it," says Pfeiffer. Parents can use VPN connections to check their children's grades, review their assignments, or get feedback from teachers. "We've seen increased parent engagement and involvement," Pfeiffer reports. "It keeps them more in communication with what's going on in the school, especially with the teachers."

District employees, meanwhile, value the SSL VPN system for keeping them productive at home. "It's been a lifesaver," says Laurie Kirkland, a teacher on assignment designing technology training programs. "When your kids are sick and you have to stay home, you can still get your work done," she says.

KSD plans to bring more students into the SSL VPN pilot during the next academic year, and then roll the system out to everyone in grades eight and up starting in the summer of 2007. If all goes to plan, the SSL VPN will eventually be available to every pupil in the district. Pfeiffer is confident that students will take to remote access quickly. "They're very engaged in technology," she says. "They want it to be integrated into their learning."

For his part, Nguyen is pleased to see KSD's one-to-one computing initiative rolling along again. "This solution will roll along with it," he predicts. ✨

Rich Freeman is a Seattle, Wash.-based freelance writer who specializes in writing about business and technology.