



# East Grand Rapids Public Schools NAC for the K-12 Masses

# EGR

East Grand Rapids Public Schools

## About the East Grand Rapids Public Schools

The school district, located in East Grand Rapids in Western Michigan, prides itself with providing challenging academic programs and excellent opportunities in the arts. The East Grand Rapids Public Schools district has an enrollment of 2,900 students and employs around 500 employees. Seven IT employees serve the entire district, which has approximately 1,300 district-owned computers located across multiple campuses and administrative buildings.

## Introduction

A maverick of sorts in the education industry, Jeff Crawford, Manager of Networking and Security at the East Grand Rapids Public Schools district, calls himself the poster child for network access control (NAC) in schools. He is also a prognosticator on where K-12 education is going as day-to-day learning programs are driving the move toward accessible wireless and wired network access for everyone.

“Every school should consider a NAC solution,” said Crawford. “With budget cuts, the only sustainable way to give students and guests access to our network is to have them bring their own computers to school. Deploying a NAC solution that supports a multi-vendor environment and multiple endpoint types is the one way to accomplish this. NAC will be a big driver in K-12 for years to come.”

This is a bold stance considering previous-generation NAC solutions have failed to gain widespread deployment due to complexities and lack of standards support. Despite this, the requirement to provide students and guests with access to online learning tools and the Internet has continued to expand.

## Addressing Today’s Needs Under A Tight Budget

Like most school districts across the U.S., East Grand Rapids Public Schools’ (EGRPS) challenges include providing access to technology under a tight budget, while segmenting network resources so that students do not have access to private information, such as staff and administrative data. Maintaining individual students’ access to the right printers, files, the Internet, and Moodle educational software, which is a learning management system of online books and learning tools, was a constant battle.

In 2003, a committee of students, staff, administrators, and school board members decided to let students bring personal devices on campus. To secure access privileges back then, the student had to fill out forms and meet with IT to evaluate their machines and discuss procedures, such as that there is no file sharing allowed. After this 30-minute process, the student’s device was manually configured for access to the district’s Cisco Systems wireless network. This took a lot of time and was a deterrent for students to join the program, which began with only 17 participants.

“We knew we needed to make this easier, and we had to take the technician out of the process,” said Crawford. “I knew we could do this with a NAC solution, and had spent years researching them. Among the many things I learned is that a NAC solution needs to support open standards – we don’t want our NAC solution to dictate the directory services or the brand of switch we have to buy.”

As Crawford explained, he had looked into the Cisco NAC solution but it supported proprietary protocols, and required four different products, as well as manually loading Cisco specific software on each machine. Also at the time, Cisco supported only Windows computers. Crawford's requirements called for a solution that would also support Apple Mac OS X machines, and the district's new 801.1X wireless security initiative.

## The Search For A Solution

The district's IT department clearly saw that the time spent to secure access for each student's machine was a hassle and hindered student participation. As a result, Crawford set out to find the NAC solution to best meet his needs. He knew that he needed a policy-based identity solution that would help his team with their 802.1X WLAN wireless deployment to a guest network, and that the solution would have to work with their various vendors' networking equipment.

"Every school district should have a NAC solution that can support differentiated access for students, staff, and guests because it's unsustainable for a district to try to provide a computer for everyone," said Crawford. "By allowing students, speakers, parents and other community members to bring in their own equipment to utilize the network saves us a lot of money." More importantly, Crawford believes that students should be able to choose the device that best facilitates their own unique style of learning. If a student feels most comfortable using a netbook running Linux and they own one – that is the best device for them to use in school.

To meet his guest access needs, Crawford initially looked at NAC solutions from Cisco, Juniper Networks, Sophos and Symantec. None delivered the functionality he needed.

"To this day Cisco is still a complex solution because they are trying to combine five acquisitions into one, which would cost us \$100,000 due to all the devices required," he said. "I also struggled with vendor lock-in from the solutions we first reviewed, because they didn't rely on known open standards."

## Finding Avenda

Crawford was introduced to Avenda at an Interop event, where he had the opportunity to learn of the capabilities of Avenda's identity-aware access control solution and eTIPS platform.

The solution is comprised of a single hardened network appliance, a flexible policy platform and persistent or dissolvable software agents. It is the only access control solution that centrally manages policies across all access methods and frameworks, operating systems, managed and unmanaged endpoints, and existing identity stores. The eTIPS platform includes a built-in AAA server, network access control, and policy reporting components. It includes an easy-to-use Web 2.0 interface with 3-Click Help-desk navigation, web and 802.1X authentication and authorization methods, and one-of-kind policy simulation and deployment tools. The eTIPS platform also worked with the entire district's network infrastructure, identity stores and endpoints.

"Before we deployed the 802.1X technology, we had weak security, but with the Avenda solution we could see improving our security posture, and eliminating the manual provisioning of guest access," said Crawford. "We could see how participation in our access program would increase, as students wouldn't have to meet with the tech guys anymore. We could go to a model where they just used their normal school user ID and a password."



## The Allow Program for Secure Campus Access Takes Flight

To ensure high availability, Crawford purchased two eTIPS 5000 appliances that operate in a cluster model. Any changes performed on the primary or publisher eTIPS appliance are automatically pushed to the subscriber eTIPS appliance to ensure a consistent login experience for the students, staff, and guests. This enabled the district to roll out its Allow Program for secure campus access.

“The deployment of the eTIPS platform for our wireless network was awesome,” he said. “We had it up and running in two days, and by eliminating the intervention with the IT team the Allow Program took off as the student’s spread the word that bringing your own laptop to school was the best way to get on the network.”

Support for events and visitors on campus are now managed through a receptionist’s role that allows anyone with authority to easily create new login accounts, even for large events, such as a spelling bee. For instance, all guests are required to check in at the front desk with a receptionist for security reasons. Now a receptionist just asks if they need to get on the network and can create an account right there.

Crawford said he was impressed with the granular policies he could set up for students and faculty, by trusted and untrusted devices, identity, role, etc., which allowed him to put users on different virtual LANs. He said the templates for his 802.1X deployment and wireless WEP authentication were helpful. Support for the district’s mix of network components was also critical, he said. The district has Enterasys switches, and server platforms that include Apple, Novell, Linux, Windows, and OS2. Crawford’s team must also support a mix of Linux, Windows, and Mac OS X computers. Its WLAN is made up of controllers and access points from Cisco.

“Avenda’s advantages are that it supports open standards and is easy to manage,” said Crawford. “From a technical perspective, the ‘Big Guys’ make you buy multiple pieces from them. Avenda isn’t locking me into a certain switch or a certain wireless controller – it works with all my equipment.”

“The policy platform is cool and unique,” said Crawford. “It is logical to set up, from beginning to end, and all of it is looked at as a service, not a bunch of separate policies. It puts all the pieces of NAC together; roles, authentication, authorization and endpoint health.”

The eTIPS platform checks for the health requirements that Crawford has set in place for all endpoints – firewall enabled, patch levels/service packs current, and antivirus enabled. If access is denied, a page pops up instructing the user who to contact.

“Usually access is denied because antivirus isn’t up to date or the user hasn’t deployed Service Pack 2 or 3 for Windows,” said Crawford. “Our district tech support people can help the user get the machine up to date, and on the network quickly.”

This effort is essential, as the district looks towards more and more students showing up with their own personal devices.

## The Results

According to Crawford, this new solution has saved the entire department more than 100 man hours and has grown to approximately 130 students per day accessing network services.

“The best security is transparent to the end user, and doesn’t make us change how we do business,” said Crawford. “Students are singing the program’s praise, and access is all self managed, with IT freed up to do other things. Our student users are separated from the core production networks, but still have access to the resources they need. The system is easy to use, and our support for it has gone to zero.”



Crawford said he benefits because the Avenda platform includes a built-in Radius and TACACS+ servers. He now also uses Avenda for TACACS+ authentication of administrator logins to all of his network equipment.

“At one time, someone inadvertently disclosed my switch password to a temporary employee,” recalled Crawford. “Since I don’t maintain individual user accounts on each device, before Avenda it would have been a big pain to log in and change all passwords on the hundreds of network devices. But now I can make that change in one spot.”

Crawford said Avenda is helping him achieve his goal of providing access for students, without spending \$100,000s on student computers. The IT group saves 30 minutes of set up time for each of the hundreds of users, and no longer has to manage individual accounts, passwords and security.

“Today, we are able to bring computers onto our network safely and securely,” said Crawford. “We have securely opened the flood gates with Avenda. We simply can’t allow students to bring computers on campus without having the Avenda product. This solution makes NAC available to the masses.”

## Contacts

Dan Spalding  
Spalding Communications, LLC  
dan@spaldingcomm.com

Trent Fierro  
Avenda Systems, Inc.  
trent@avendasys.com



Avenda Systems, Inc.  
3255 Scott Blvd., Bldg. 2, Suite 102  
Santa Clara, California 95054  
408.748.0902  
info@avendasys.com  
www.avendasys.com

### Next Steps

Enable user and endpoint trust with eTIPS identity and policy management. Contact us for further information about securing your wireless and wired networks.