Reading School District

- Full-stack Meraki solution provides an amazing network experience for students
- 1,400+ access points provide district-wide wireless coverage across 19 schools
- Meraki MV security cameras provide simplified management with no DVRs

With over 1,400 access points providing district-wide wireless coverage, security appliances aggregating six gigabits of traffic, switches making network troubleshooting a breeze, mobile-device management securing 300 school iPads, and security cameras allowing for simplified video management, Reading School District's full-stack Meraki solution provides an amazing network experience for students, teachers, and the IT team.

Reading School District, located in southeastern Pennsylvania, is the fourth largest school district in the state with 13 elementary schools, four middle schools, one intermediate high school, and one senior high school, with additional special use schools and administrative locations, totaling 25 buildings. The district is committed to providing reliable wireless coverage, secure network access, and physical safety for students and teachers with the classroom engagement and technology resources they deserve.

As the only Network and Systems Administrator, CR Hiestand knew he needed a solution that was easy to manage in order to meet the district's expectations and provide the best experience for users. So, when using a different vendor for wireless, switching, and security – with no centralized management, leading to difficult and duplicate on-site configurations – became too much to handle, CR decided to look for a solution that was easier to manage, without compromising performance.

A FULL NETWORK STACK, WITH ONE VENDOR

To decide on the right solution, CR conducted a trial with two different networking vendors at the high school. The results were extremely clear: one solution was frustrating to manage, while the Meraki solution was easy and straightforward. Because of this, CR decided to deploy Meraki access points, switches, security appliances, mobile device management software, and security cameras across the district.

RELIABLE CONNECTIONS DISTRICT-WIDE

With Meraki access points and switches, learning happens in the classroom without a hitch. In two summers, CR completely ripped out his legacy wireless solution and replaced it with Meraki MR42 access points at all 19 schools, allowing students and teachers network access whenever they need it.

To access the network, the district uses three SSIDs: one for district-owned devices, with students and teachers authenticating via 802.1X and separated by group policies for appropriate web filtering, a guest network that securely connects visitors using a generated username and password, and a third network using Systems Manager Sentry for mobile devices enrolled in Systems Manager. This allows the school to throttle student and guest traffic and separate them into different VLANs automatically. In addition, the ease of configuration and management with Meraki access points has been a game changer for CR. Before, he would have to make individual changes to access points in each building, leaving room for error. Now, with the Meraki dashboard, he has one pre-configured template across all 1,400 access points, allowing him to make changes once and deploy them instantly.

"I used to have to make a change 20 times, which took forever and opened up a lot of room for mistakes. It makes a huge difference for me to be able to make a change in one spot and have it take effect for all the buildings."

— CR Hiestand, Network and Systems Administrator

Supporting these access points, and the rest of the network, are Meraki switches. CR has deployed switches at three schools, with MS225s at the edge, MS350s stacked at the core in the two smaller schools, and MS425s at the core of the larger building. The switches are so easy to configure and manage through the Meraki dashboard that CR was even able to train non-technical IT staff to correctly configure ports on the switches, greatly simplifying administrative overhead. Plus, built-in troubleshooting tools, like packet captures, have allowed for easy troubleshooting of network problems. CR used to manually draw out his network diagram in confusing software, but the network topology in the Meraki dashboard automatically updates and saves hours of effort.

"I had to troubleshoot an MV camera in a building that does not have a Meraki switch. So, I put in a spare Meraki switch just so I could use the packet capture — that feature is really nice."

— CR Hiestand, Network and Systems Administrator

DOUBLE THE SECURITY, DOUBLE THE FUN

To keep student data private and the network secure, Reading has all district traffic flow through two Meraki MX450 security appliances; six gigabits of total bandwidth across all of their buildings. They aggregate all of the district's Internet capacity through the MX450s, along with a vMX100 in Azure, and a MX64 in one building using site-to-site VPN to connect back to the network. CR added, "Site-to-site VPN is probably my favorite MX feature by far because it's so incredibly simple." He also deployed AMP for malware protection, which has needed no additional management since being set-up.

With a traditional analog-based security camera system, Reading struggled to capture quality video footage and use it effectively. Each DVR could only support 20 cameras, and when one camera went down the entire DVR went down, leading to gaps in coverage. When CR learned that Meraki MV security cameras were managed through the same, intuitive dashboard where he managed the rest of his network, and that all video footage was stored on the camera instead of in a NVR or DVR, he was sold.

The district started by deploying MV at two administrative buildings and one elementary school, and are already seeing the benefits. With no DVRs, CR and the security team have saved significant time by not having to maintain outdated systems or continuously replace them. By managing the cameras through the dashboard, anyone with the correct permissions and an Internet connection has access. This allows security guards, and even principals and administrators, to view footage from their phones, without having to go to the video monitoring room. The video quality is a vast improvement from their old system as well; the team can now quickly identify the who, what, when, and where of any situation. Plus, with the Motion Search tool, security guards can isolate an incident and find what they are looking for in less than 20 minutes, rather than searching through hours of video footage. The team plans to deploy thousands of MV security cameras district-wide, with cameras at every school in the next couple of years.

"We now have significantly better video quality and much better coverage. We are moving from something where we could say, 'Yes there are people moving in that area doing something' to saying, 'I know exactly who that student is and I know exactly what they are doing.' That is huge."

— CR Hiestand, Network and Systems Administrator

DEVICE MANAGEMENT AND ADVANCED INTELLIGENCE MADE EASY

As the number of district-owned devices continued to grow, CR needed a solution that would allow him to manage these devices painlessly. With 300 shared iPads at the elementary and special education schools, he wanted a solution to control the applications that were available and make sure all of the devices were accounted for. With Meraki Systems Manager, CR can push out applications to all devices remotely, and keep track of which students are using what devices. When a teacher wants to make a change to the application list, they can just submit a ticket and the IT team can quickly make the update.

Even with the powerful network and management tools that CR has at his disposal with Meraki Systems Manager and the Meraki dashboard, he wanted to truly optimize the end-user experience and quickly isolate issues that may not have to do with the network. With Meraki Insight, CR has end-to-end visibility, and can easily identify network problems from the end-point to the application server, in a fraction of the time it used to take to troubleshoot. With a holistic view of what is contributing to the end-user's network slow-down, whether it's the iPad, web application, or the network, CR can find a faster resolution for students and teachers.

MORE FEATURES, MORE ANALYTICS, MORE STUDENT ENGAGEMENT

As Meraki continues to add more features in the dashboard, release new products, and develop new insights for users, CR is always on the lookout for compelling ways to leverage the latest technology. Given the superior management capabilities and time savings his Meraki full-stack solution provides, CR can dedicate more of his time to taking on new IT initiatives and improving technology in the classroom district-wide, rather than troubleshooting or configuring the network. CR concluded, "Thanks to the vastly superior management capabilities and the minimal amount of time spent managing, troubleshooting, or configuring Meraki hardware, we have more time that we can dedicate to making our classrooms 21st-century learning centers."