



## Ottawa University

- Layer 2 to Layer 3 transition to improve bandwidth efficiency and management
- Adoption of Meraki wireless, switching, security, and EMM across multiple sites
- New campus in Surprise, AZ set up entirely using Meraki networking equipment



It's safe to say that the world has changed quite a bit since 1865, the year that Ottawa University was founded in small-town Ottawa, Kansas. Back in 1865, electricity was a pipe dream, 90% of Americans worked on farms, and the university had fewer than 10 students, a far cry from the 3,000 students it supports today.

But one principle has remained constant since Ottawa University was formed: the school's commitment to providing students with the best possible learning environment. In 1865, that meant support from exemplary leadership inside and outside the school — including none other than President Abraham Lincoln, who personally signed the treaty establishing the school's board. Today, a state-of-the-art learning environment necessitates a speedy, secure, and reliable wireless network for students and faculty. At Ottawa, a staff of just two people works day in and day out to make sure this network is up and running: Adam Caylor, Manager of Network Operations, and Emmanuel Okpara, Systems and Network Engineer.

With just each other to rely on, Caylor and Okpara are constantly on their toes, chasing after the latest technological innovations to ensure they can keep up with the evolving needs of Ottawa's student population. "We're always looking out for what's best for our students and investing in technology for the long term," Caylor says.

A couple of years ago, the Ottawa IT team started to realize that their networking solution needed a significant revamp. The network stack had a difficult-to-use command line interface. Both the hardware and software required manual updates, no matter which vendors they came from. Worst of all, the existing network could no longer meet students' needs for pervasive, seamless wireless coverage. "The number one complaint at football games wasn't about the team's performance — it was that the WiFi wasn't working," Caylor jokes. "In a university setting, the demand on the network just keeps increasing, especially as students use bandwidth-guzzling applications and devices like Netflix and Xbox Live."

To address the bandwidth challenges, Caylor and Okpara knew they needed to bring Layer 3 networking to all of the university's buildings, since the Layer 2 network infrastructure had long been outgrown. Their hope was that Layer 3 would bring not only faster and more reliable WiFi, but also allow for traffic-shaping capabilities. Along with the Layer 3 transition, the IT team also decided to bring Ottawa University's entire network stack under a single vendor. "Dealing with different vendors' interfaces and support lines was quickly becoming a hassle," Caylor says. "Some of our equipment was slow, some of it was unreliable — it was a bit of a crapshoot. Given the major move to Layer 3 that we needed to make, this was the right time to make the change and settle on a single, reliable solution."

Ditching their grab-bag assortment of vendors, the Ottawa team adopted Cisco Meraki for their wireless, switching, security, and mobility management needs. Caylor was already familiar with Meraki from his previous job as a network admin at a K-12 school district. “What really set Meraki apart as a solution was the simplicity of being able to manage everything from a single pane of glass.”

## “Replacing a bunch of vendors and brands of equipment with Meraki meant simplicity, and if we needed support for anything, there’s only one number for us to call.”

– Ernest Staats, Senior IT Security and Network Administrator

Choosing Meraki was about more than just monitoring their network stack from one dashboard. Caylor and Okpara knew that embracing Meraki’s cloud-managed IT model was crucial for efficiently managing and scaling the university’s growing network. Due to the team’s small size, Caylor and Okpara aren’t always on-site to manage issues. They’re often traveling to a different town for a training session or at the airport, waiting to catch a plane to another site where new hardware needs to be installed. With the Meraki Dashboard, the Ottawa team can log on from any browser to quickly address issues, such as network latency or security threats. They can also configure alerts to be sent automatically whenever an issue occurs, rather than having to constantly monitor a host of different management pages.

Meraki’s cloud-powered monitoring and management capabilities have proven useful in a number of situations. Okpara recalls an issue with a security camera at the school’s student center. The PoE camera would randomly turn off, and the manufacturer wouldn’t come on-site to investigate whether something had gone wrong with the camera itself. Frustrated by the company’s non-responsiveness, Okpara logged into the Meraki Dashboard, determined to figure out whether the camera or the network was to blame. In just a few clicks, he cycled the ports on the switch the camera was connected to and tested the Ethernet cable using a cable test tool, proving that neither the switch nor the cable were faulty. The camera company was forced to replace the hardware, saving the university hundreds of dollars.

The Meraki Dashboard has also made more conventional network management tasks a cinch for the Ottawa team. Adding new Meraki MS switches to the network is a plug-and-play affair, since the team can configure switch ports individually or en masse before connecting the switches to the network. When it comes to network security, Caylor and Okpara rely on a pair of Meraki MX600s located in the main campus’ data center and on smaller MX400 security appliances set up at remote sites. The MX appliances, which combine security with SD-WAN capabilities, handle all of Ottawa’s Internet traffic in and out of the network. The team uses the MX appliances’ next-generation firewall and content filtering to block

inappropriate material, shape traffic on the network, and set up secure site-to-site VPN connections to connect different campuses together.

Caylor and Okpara’s hard work is nearly invisible to students and staff, and the team is fine with that. “We’ve got Meraki access points everywhere — in the ceilings of administrative buildings, in residence halls, in the press box of our football stadiums, in gyms — literally everywhere. But they’re so inconspicuous that the only evidence they’re there is that students no longer lose coverage as they walk from building to building,” Caylor says.

Looking toward the future, Ottawa University is opening a new residential campus in Surprise, AZ to serve college students on the West Coast. The opening of a new, geographically separate campus is a major development for Ottawa University in many ways, but from a networking standpoint, Caylor and Adam are already prepared. The two IT admins ordered and configured new Meraki access points, switches, and security appliances, setting them up in Ottawa using the Meraki Dashboard before shipping them to Surprise. This preconfiguration helped the team avoid having to travel to Arizona, saving Caylor and Okpara weeks of time and saving the university money. Furthermore, since Caylor and Okpara can manage both campuses’ networks from a single dashboard no matter where they are, there’s no need for additional IT personnel.

Emboldened by the success they’ve achieved so far, the Ottawa University IT team looks forward to seeing how else they can modernize their networking using Meraki. “In the eight months or so that I’ve been here, I’ve been pleased every time I talk to the Meraki folks and hear about new features and functionality that have made our lives easier,” Caylor says.

Okpara agrees. “Initially, we had a little bit of apprehension when it came to managing a switch or router through the cloud, rather than through an on-site controller,” he admits. “But Meraki has proven incredibly simple to manage.”