



## Butler University

- 10-year-old network could no longer support growing connectivity demands
- In a week and a half, the IT team installed 1,300+ Meraki APs across campus
- Can now provide timely, personalized communications to students via APIs



As a top-ranked regional university in the Midwest, Butler University, located on the northside of Indianapolis, is determined to ensure all of its students succeed, both while enrolled and beyond. With a focus on personalized learning, unique opportunities, and innovative technology, the school

provides the best educational experience for every student. This is exemplified through Butler App, a student-focused application that engages students by allowing them to quickly find relevant campus information from their mobile devices. Students, faculty, and staff all depend on these new, innovative tools, but using such tools on campus requires a robust and reliable wireless network.

### Hot Water or Reliable Wi-Fi?

Peter Williams, Associate Vice President of IT and Chief Information Officer, and Michael Denny, Network and Security Architect, know

better than most how important reliable wireless is to today's students. Williams shared, "At a previous institution, one of the residence halls lost a boiler for a week and a half. Students were taking cold showers every day and there was not one single complaint that made the newspaper or got to the president's office. But 30 minutes without Wi-Fi and people are ready to riot." Plus, as new devices hit the market, students are some of the first people to test them out, bringing new gadgets to campus when they return from winter break or the summer holiday. Because of this, Williams and Denny realized that their 10-year-old network could no longer support the growing connectivity demanded by a constant influx of new devices and technology on campus, so they began the search for a new wireless solution. After evaluating a few options, they selected Cisco Meraki cloud-managed wireless due to the ease of deployment, reliability, troubleshooting tools, and open platform.

In a week and a half, the IT team was able to install over 1,300 Meraki MR access points across the entire campus. This speed of

deployment was possible because the access points (APs) were preconfigured in the Meraki dashboard before they even arrived on campus. Using the template feature and labels for device organization, the team easily applied the same configuration to hundreds of devices and installed them for immediate use. Denny added, “The moment the access points hit the network, they were active and working.” Now, Meraki APs are in all dorms, academic buildings, and outdoor spaces, as well as in Hinkle Fieldhouse, a national historic landmark and one of the nation’s greatest sports arenas. With their new wireless network up and running so quickly, Williams and Denny were able to quickly gain access to advanced analytics and visualization tools, which made network management and troubleshooting much easier.

To ensure guest wireless activity cannot take priority over academic traffic on the network, campus users have two SSID choices: the main, secure network; and a guest network. Students and staff are encouraged to connect through the main campus network, authenticating through Cisco ISE with a Butler username and password. The guest network is open for students and visitors to use, but only permits bandwidth-capped internet use.

One of Denny’s favorite things about the cloud-managed network is the visibility it provides about network activity, which not only helps with network troubleshooting, but with school safety and accountability. Denny often uses the Meraki dashboard to locate which APs students or staff are having connectivity issues with and can identify the problem from there. With the ability to give tier two and tier three IT team members access to the Meraki dashboard, more team members can assist with troubleshooting when needed. If a student is having a connectivity issue, IT can diagnose the problem by checking the AP, its signal strength, the kind of device the student is using, and the target application. Several of the technology team members are not network engineers, yet with the Meraki dashboard, they can still help when needed. Williams added, “It enables a lot of people to troubleshoot, resolving issues much more quickly and allowing staff to pinpoint the source of the problem a lot more effectively. As the person who used to get all of these problems when no one else could solve them, it’s nice that I rarely get these escalations anymore.”

Another reason network complaints have decreased is due to the new high-density network design. With the transition to a dual-band network that utilizes bandwidth steering, devices automatically choose the less congested channel, helping to balance network traffic and ensuring users always have the best connection. They also set up the APs to ignore clients that are communicating below a certain power level, forcing the device to connect to the closest AP. In the last year, over 100,000 devices have traversed the network, which has worked seamlessly for users.

**“People don’t really say anything about the wireless now because they see it as a utility, just like the lights. It just works.”**

- Network and security architect Michael Denny

Butler students are required to live on campus through their junior year, so having reliable wireless in the residence halls is mandatory. The majority of the campus wireless traffic comes from the residence halls, with Netflix and Youtube using over half of the bandwidth at any given time. Through the Meraki dashboard, Williams identified that the busiest time for student wireless usage was from 7 p.m. until 3 a.m., with traffic nearing bandwidth capacity during that time. To support all of the devices students bring to campus—including gaming consoles, streaming devices, and other consumer electronics—the team enabled multicast routing and blocked universal plug and play to stop these devices from taking the network down. Beyond this, there are no restrictions on wireless access in the residence halls, which allows Butler to provide an at-home experience, only faster for students. Denny added, “Students consume as much data as they possibly can, so the test is, can the wireless support students without getting complaints? And now, the answer is yes.”

From the residence halls to the academic buildings and the basketball court, students and staff now have much better connectivity across campus. Thanks to seamless roaming access and easy device onboarding, students have expressed gratitude for the improved wireless network. Even in the Fieldhouse, a venue where thousands of spectators connect wirelessly at the same time, the IT team has received great feedback about the wireless performance. In classrooms, students generally connect more than one device at any given time, and the Meraki APs supported the increased load without an issue.

### **Improving Student Experiences with Engineered Serendipity**

“Meraki has created a lot of efficiencies for us right out of the gate. It’s given us the capability to dream about what we can do going forward. Having solid wireless that’s easy to configure and support allows us to take that base and use APIs to learn and interact with students differently.” - Peter Williams, Associate VP for the IT & Chief Information Officer

With a reliable and high-density wireless network in place, Williams and Denny are now setting their sights on providing timely, personalized communications to students via Bluetooth Beacons and API integrations, as well as using network analytics to make informed decisions. When a student walks in range of an AP in the dining hall, student center, or science building, different communications can be pushed to that device based on location.

By analyzing wireless usage patterns, the university can better understand who is going to what locations on campus and how the facilities are being used. Plus, by using APIs, the school can use and interact with network data in new and exciting ways. Williams added, “We’ll be able to leverage data with artificial intelligence or machine learning to deliver significant value that would never have been possible before. For us, we see this as a game changer for the future with having the capacity and capability Meraki provides.” Williams and Denny also plan to use APIs to deliver a superior fan experience during Butler sporting events and ensure students have a personalized experiences no matter where they are. Williams calls this “engineered serendipity,” the idea that a student wouldn’t know about a relevant activity unless they received the right notification at the perfect time. Williams added, “We talk about student engagement, that we want students to participate in activities, learning opportunities, experiential groups, and sporting events, all these different things. But sometimes, students can become over engaged, and that can impact their odds for success as well. So how can we expertly craft and time the interaction in a personal way that’s perfect for what’s going on for that student right now.”

Having easy access to reliable, high-density wireless is just one part of the equation. The ultimate goal is to ensure students feel welcomed and connected to the university. From the time a student is admitted to the school through their graduation day, Butler aims to provide resources to make the students’ journey the best it can be. The abundance and reliability of wireless has become the foundation for fun, exciting campus experiences that students and the university can use to achieve success.