

BUTLER UNIVERSITY

RUCKUS Networks delivers \$1 million in savings as well as an amazing student experience

Butler University is a private university located in Indianapolis that serves more than 5,500 students and nearly 400 staff members. Approximately five miles from downtown Indianapolis, this small university offers a personal approach to higher learning, with smaller class sizes and more accessible professors.



Customer
Butler University

Location
Indianapolis, IN

REQUIREMENTS

- Refresh and future-proof aging wired and Wi-Fi® network
- Eliminate dead zones and interference issues in old buildings
- Deliver dependable connectivity across 300 acres
- Reduce CapEx and OpEx

SOLUTIONS

- RUCKUS® Wi-Fi 6E APs: R560s, R760s
- RUCKUS switching: ICX7150s, ICX7850s, ICX7650s
- RUCKUS AI™, Virtual SmartZone™
- RUCKUS Cloudpath® Enrollment System

BENEFITS

- \$1 million in savings
- Faster speeds, more bandwidth, easy onboarding
- Quick and easy deployment
- Simple management and maintenance

Founded in 1855, Butler University is composed of 58 buildings across a 300-acre campus. This private university features a student population of approximately 4,500 undergrad and more than 1,000 graduate students. Recently, Butler was ranked #1 in Best Regional Universities Midwest Rankings by U.S. News and World Reports.

U.S. News & World Report also ranked Butler #1 in Most Innovative Schools in 2024. This ranking covers the most

innovative improvements in terms of curriculum, faculty, students, campus life, technology or facilities. And Butler has no plans of slowing down.

To stay ahead of the technology curve, Butler recently partnered with AvantBlue, a technology solutions company from the greater Indianapolis area specializing in the education industry vertical, to create and test a new wired and wireless network refresh. In this new plan, Butler would address all past issues as well as prepare for trends that might become future challenges.

To help them design their network of the future, AvantBlue chose RUCKUS Networks as their technology provider. To test Butler's new design, RUCKUS

suggested tackling the three most problematic areas first:

- Arthur Jordan Memorial Hall: constructed of reinforced concrete and pink granite, this four-story building is the main academic and administration building that houses the offices of the university president as well as the College of Liberal Arts and Sciences.
- Butler Terrace and South Campus Apartments: complexes of brick buildings that provide on-campus housing for juniors, seniors and their multitude of devices.
- Esports Park: a 7,500-square-foot facility that supports high-performance gaming gear, virtual-reality tech and major gaming events, including the Big East varsity Esports competitions.

RUCKUS ICX® switches deliver instant improvement

To build this network of the future, AvantBlue began the refresh by replacing existing network switches with the RUCKUS ICX family of fixed form-factor switches.

"The network had reached the end of its six-to-seven-year life of our existing switches," explains Michael Denny, co-founder of AvantBlue. "So [they] were budgeted for replacement. [One of] the motivating drivers was that we were limited to 1 gig per port, which was what was harming our ability to move forward on our wireless plan."

In addition to deploying new RUCKUS ICX switches, Butler also chose RUCKUS SmartZone™ network controllers. Designed to work together and simplify network installation, these enterprise-class solutions not only gave the network new life; it also made network deployment fast and easy.



"We were able to leverage a contractor that had no networking experience and no knowledge of how any of this works," said Nick Northcutt, Butler's network infrastructure operations analyst. "Because of the automated process through SmartZone, [the contractor] doesn't really need to make sense of any of it. And it worked out really well."

In the past, Butler utilized a competitor's product to control their switches, but they weren't happy with how switches still had to be configured individually. "[Using SmartZone] has been a lot easier to upgrade firmware on our switches," said Northcutt. "That has made the whole process way simpler and... [it] comes in with a much more affordable price."

Migrating to RUCKUS switches gave Butler and AvantBlue renewed confidence that they would be prepared as more students, faculty and devices

become more dependent on the network. "We had 10 gig connectivity from building to core previously and we were able to upgrade to 40 gig," said Denny. "What that allowed us to do is to throw as much as we wanted in each building without really having to worry about bottlenecks. And there have not been any bottlenecks."

Replacing existing switches also gave Butler's IT department more peace of mind about their network stability. "There's not really been a situation where I'm showing up in the middle of the night because a switch failed," said Northcutt. "If there's a power outage, I can go to bed knowing that, when the power is restored, all of the switches come back up and the network is operating correctly again."

What also made RUCKUS switches especially attractive to AvantBlue's new network plan was how flexible and

scalable they were. “[RUCKUS] gave us the ability to upgrade the networks core to 100 gig.” said Denny. “So, that allows us more and more bandwidth without having to start throttling at the edge.”

Winning over Esports athletes

In Esports Park, replacing the switches offered a vast improvement. To operate and qualify as an Esports tournament host, Butler had to prove that their network could handle the high-capacity connectivity with low latency. “One of our smallest buildings on campus was also the biggest data frame,” said Northcutt.

Moreover, Esports Park not only connects students to gaming platforms during big tournaments, but it also broadcasts the action on Twitch and other streaming platforms in real time. “The cameras, the workstations, the editing, the audio—everything runs over the network using multicast,” states

Denny. “So all these devices are on there and the switch handles all of that.”

To ensure this bandwidth-hungry network could support the demand, Butler deployed RUCKUS ICX 7150-48ZP 48-port switches, which added higher performance, greater resiliency and increased PoE power to the network. Since the installation, AvantBlue and Butler have not been disappointed.

“Once we got over the initial AV configuration stuff, it’s been going very smoothly,” reports Northcutt. “If there is any little ounce of lag, or any kind of latency, or any sort of weird network glitch or technical hiccup, you’re going to hear about it because it’s going to impact the stream or the actual competition itself.

That stuff’s critical for this environment and it’s been radio silent for quite some time over there—which has been very nice.”

Seeing proof of concept with RUCKUS APs

While RUCKUS switches and RUCKUS SmartZone removed the possibility of future bottlenecks at the core, AvantBlue still sought to iron out weak signal transmissions in one of Butler’s most formidable environments.

Arthur Jordan Memorial Hall was constructed in 1928 as one of the campus’s first buildings. This building proved to be an especially tough challenge due to its construction and design. The interior building materials are comprised of high-quality wood and wall coverings that block signals between rooms. In addition to the dense construction material, the unique architecture configurations (such as half floors) as well as the room and hallway layouts hampered strong network signals throughout the structure. And if that weren’t enough, Jordan Hall is on



the National Register of Historic Places—meaning its preservation trumps any modification to make it more Wi-Fi friendly.

In the past, devices in Jordan Hall had a hard time connecting to the network. “Even at 100% power, the existing competitor APs had poor coverage,” admits Denny. “The design that we had in that building was not appropriate.” To improve connectivity, AvantBlue rethought the placement and number of the APs necessary to improve the Wi-Fi signal. AvantBlue even mapped the entire building using an Ekahau Sidekick to measure the attenuation of all the walls.

In the new design, Butler deployed RUCKUS R760s APs—high-performance Wi-Fi 6E indoor access points that support 12 spatial streams (4x4:4 in 6 GHz, 4x4:4 in 5 GHz, 4x4:4 in 2.4 GHz). Even though AvantBlue deployed more APs throughout the building, Butler still saw an overall savings compared to what they would have needed to do with the competitor. “I would have two or three APs in a large room with the competitor’s design,” stated Denny. “[But now] we only have one RUCKUS AP in that room.”

AvantBlue and Butler were very pleased with how simple and fast deployment happened. “We did a zero-touch deployment,” said Denny. “All of our switches and RUCKUS APs phone home to [SmartZone]. And that allowed the people who were doing the physical deployment to not have to console in. They didn’t have to configure anything. They just plugged it in.”

As for the student housing revamp, replacing existing APs with RUCKUS was just one part of the equation. The other involved migrating from a RUCKUS competitor’s product to RUCKUS



Cloudpath Enrollment System. With Cloudpath software, Butler could more easily secure wired and wireless network access for BYOD, guest users and IT-owned devices.

“A student that’s coming in [may have] an Xbox, two phones, a tablet, a laptop, a TV and their smartwatch, all connecting to the wireless,” explains Jaron Alexander, RUCKUS Networks territory account manager. “When you enable Cloudpath, you give students their own Dynamic PSK™ (Pre-shared Keys) where they get their own set [of access passwords].” Dynamic PSK technology enables every user, and even every device, to get a unique Wi-Fi password.

Following the replacement of switches and APs as well as by running Cloudpath software, these heavily trafficked student apartments no longer were an issue.

“When we fixed the AP placements in those two buildings, [they] have been radio silent,” said Northcutt. “[I’ve had] no cases in the last academic year at all, which is unusual for a residential building where students are living there, playing video games, streaming Netflix and attending class via Zoom. That is abnormal [but] it’s very nice.”

In addition to deploying new switches and APs, Butler has added RUCKUS AI to their network refresh. Through a single pane of glass, Butler could now see how their network is performing and address potential issues before they might become a problem. “From my limited use of Analytics, I can see the potential,” said Northcutt. “Having quick access to readable historical data surrounding client SNR, throughput, SSID, frequency, etc., is very useful.”

As their new network comes online, the addition of RUCKUS AI helps Butler’s IT team do more without having to add staff. “It does allow us to solve cases that we wouldn’t really be able to solve without it,” stated Denny.

Looking ahead to phase three

With the completion of the first two phases, Butler anticipates finalizing their network refresh throughout the rest of their 300-acre campus in the months ahead. Phase three will involve deploying new RUCKUS indoor as well as outdoor APs across the campus. “We only have three buildings that utilize RUCKUS access points,” said Denny. “We plan to migrate the rest... [in] our final refresh next summer.”

One of the benefits to upgrading to RUCKUS APs that AvantBlue looks forward to is managing the network remotely through RUCKUS SmartZone. "Since my time here supporting our wireless network, [there have] been a lot of individual cases coming in, manually configuring radio app settings, channel settings and specific areas as they are reported," states Northcutt. "the feature in the competitor's product, unfortunately, wasn't as useful or as 100% bulletproof."

AvantBlue expects the installation of new RUCKUS APs to eliminate known problematic interference areas, being that only RUCKUS APs offer the patented BeamFlex® smart antenna system and ChannelFly® automated RF channel selection technologies. "[This] would be a really big win for us," said Northcutt.

Migrating to the 6 GHz spectrum

Operating a campus Wi-Fi network can be a double-edged sword. With each new year, old devices that can create compatibility issues typically disappear as students graduate. But then, newer devices that run the latest standards also crop up. So, the university network needs to stay ahead of technology trends.

About RUCKUS Networks

RUCKUS Networks builds and delivers purpose-driven networks that perform in the demanding environments of the industries we serve. Together with our network of trusted go-to-market partners, we empower our customers to deliver exceptional experiences to the guests, students, residents, citizens and employees who count on them.

For these reasons, AvantBlue plans on moving the network towards Wi-Fi 6E (Extended) to take advantage of the 6 GHz channel when it becomes fully available. "I see that 6 GHz is probably the way for us," stated Denny. "It will allow us to have way more channels and it will also allow us to expand the channel width to get users closer to the throughput that we would like to see."

As the campus moves toward a more powerful wireless network, AvantBlue thinks Butler can do away with the wired side of the network. "The reliability in our plan is to essentially start phasing out wired ports if this is effective," said Denny. "[Because] all of our new equipment that we're buying has 6 GHz wireless—even desktop units."

In addition, with a fully functional high-performance network, Butler can now explore a host of possibilities to automate more of their campus in the future. "We're even talking about potentially doing some internet of things-type stuff," reveals Alexander. "Temperatures, HVAC systems, door locks and stuff like that—connected through IT devices. But that's all preliminary as of right now."



Better student experience at a million-dollar discount

AvantBlue's network redesign along with RUCKUS Networks technology not only prepared Butler's network for things to come; it also delivered a great student experience at a very affordable price.

With its award-winning and patented technology, RUCKUS Networks was able to help AvantBlue deliver a network refresh at a cost savings of more than \$1 million.

www.ruckusnetworks.com

Visit our website or contact your local RUCKUS representative for more information.

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CS-118129.1-EN (04/26)

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