

SOLUTION BRIEF



POWERING THE NEW “SMART CAMPUS” LIFESTYLE

By most measures, the quality of the education that students can receive at modern colleges and universities has never been higher. And yet, students themselves seem less convinced of the value of higher education. A [new survey](#) of college admissions directors from Higher Ed and Gallup found that just 34% of institutions are meeting new student enrollment goals. And 95% of directors agreed that institution leaders need to do a better job of explaining the value of a postsecondary degree.



What are you doing to elevate the campus experience? How are you encouraging students to engage more deeply with campus life? What are you putting in place to distinguish your institution as a place that students, faculty and researchers will clamor to be part of? If you don't have good answers to these questions, you should: colleges and universities everywhere are waging a “lifestyle arms race.” If you can't give students a compelling reason to choose to stay on your campus, other institutions will.

A growing number of colleges and universities are putting technology front and center in their strategies to elevate the campus experience. They recognize that their wired and wireless technology infrastructure is not merely a utility, but a platform for new applications and experiences that transform life on campus. They're using the campus itself—and the experiences they provide—to help their institution stand out from the crowd. In this way, IT teams are playing a larger role in shaping the campus experience and driving enrollment.

ELEVATE THE STUDENT EXPERIENCE WITH SMART CAMPUS

Innovative institutions are turning to Internet of Things (IoT) technologies to elevate the college experience. It's called the Smart Campus, and you've probably heard the term before. But what does it actually mean? What makes a campus “smart”?

At the highest level, a Smart Campus links devices, applications and people over a common, shared technology infrastructure. When everything is connected, devices and applications can interact with users and with each other in ways that weren't possible before—unleashing amazing new campus experiences and efficiencies.

Smart IoT technologies are nothing new—prospective students are likely using “smart home” technologies like connected thermostats, video cameras, and Amazon Echo's to control their lighting right now. And many campuses are already exploring the use of IoT for the same reason that enterprises and “Smart Cities” are: to lower power and water costs, reduce energy consumption, and operate their campuses more efficiently.

A Smart Campus fits in between those two models—and encompasses aspects of both of them. Inside residence halls, lecture halls, and other campus buildings, universities can use IoT technologies to give students and staff more personalized control of their environments. At the same time, they can implement broader Smart Campus use cases (building control and automation, smart water and power controls, smart parking and transit solutions) to lower costs, reduce their carbon footprint, and become the model of a “green” campus.

The first step in taking advantage of these Smart Campus use cases is having ubiquitous, reliable connectivity everywhere on campus, indoors and out. Once you do, you can give students in residence halls a smart home away from home. You can make your campus greener and more efficient. And now, you can use that same underlying infrastructure to deliver all manner of new services and experiences that elevate life on campus.

Driving Down Costs and Creating a Greener Campus

Even as they're enabling new experiences, Smart Campuses also use the same shared infrastructure and capabilities to enable new efficiencies. As you connect more devices—sensors, cameras, lighting, vehicles, ID cards—you can begin to streamline and automate many campus services. You can use analytics to identify previously unseen trends or spot anomalies. And you can use that visibility to realize substantial operational savings. Those savings can then be reinvested in the campus to fund additional student service projects, hire more staff, or expand campus facilities, to name just a few possibilities.

At the same time, Smart Campus technologies empower you to use your resources—water, power—much more efficiently. You can reduce your carbon footprint and conserve water. And you can transform your campus into the model of a green institution.

SMART CAMPUS EFFICIENCIES



CONNECTED INDOOR/OUTDOOR LIGHTING

- Drive down power costs



SMART ENVIRONMENTAL CONTROLS

- Reduce carbon footprint



SMART WATER AND POWER MANAGEMENT

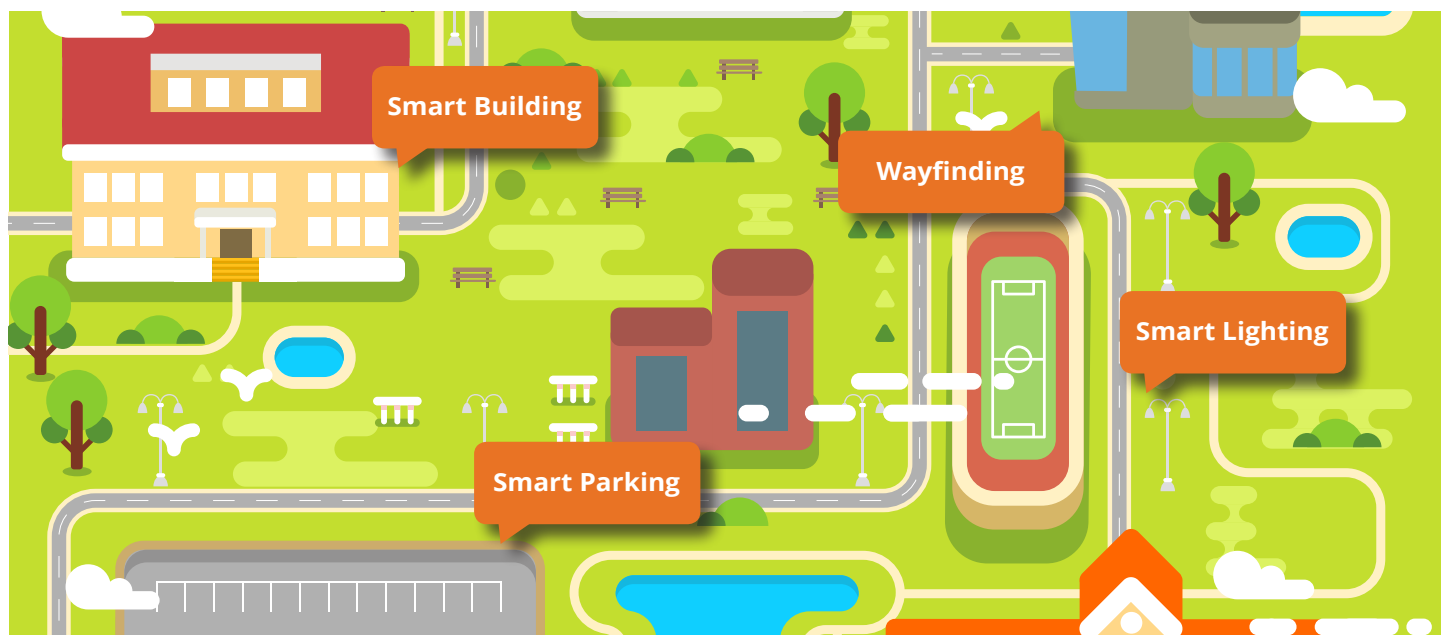
- Create a greener campus



FIVE BARS OF INDOOR CELLULAR SERVICE WITH OPEN G

- Save millions vs. DAS solutions





LIVING THE SMART CAMPUS LIFESTYLE

A Smart Campus can transform life at college in multiple ways—facilitating new learning models, keeping students safer and much more. (For the full story, see the eBook: Building a Smart Campus: The Journey Starts Here ruck.it/smartcampus-ebook. The most high-profile Smart Campus use cases, however, deliver new applications and experiences that elevate life on campus for students, faculty and guests.

- **Smart ID cards/smart payments:** Open up closed-loop student ID payment systems to integrate with credit and debit cards, and mobile payments. Integrate Smart ID cards with student information systems to automate and digitize attendance, voting, bursary distributions and even access to residence halls and school facilities.
- **Smart buildings:** Maintain student safety and comfort while reducing power. Connect heating, air conditioning, ventilation and safety equipment. Reduce power consumption and carbon footprint while making buildings more responsive to the people living, working and learning in them. Link building control sensors with analytics and location-based services to capture new insights about how people use the space—and make better investment and renovation decisions.
- **Smart lighting:** Improve student safety and campus aesthetics. Monitor and collect information on parameters such as presence and ambient light. Use this information in real time to adjust the color, temperature and intensity of indoor and outdoor lighting to reduce energy consumption and improve safety with a well-lit and inviting campus.
- **Smart transit and parking:** Real-time views of parking availability and traffic conditions help students arrive to class on time. Connect campus buses, bike shares and vehicles to provide real-time location and arrival information to students' smartphones. Reduce traffic congestion by making it easy for people to find, reserve and wirelessly pay for parking.
- **Wayfinding:** Use real-time location services to make it easy to navigate and take advantage of campus life. Provide digital kiosks with interactive maps of campus facilities and services. Offer smartphone apps that trace a student or visitor's path to their destination. Deliver messages and promotions—"20 percent off today in the campus bookstore"—triggered by a student's proximity to the student union.
- **Personal networks:** Give students in residence halls secure personal networks just like they have at home. Let them see and easily connect with their stuff—gaming consoles, printers, streaming media devices—and only their stuff in seconds.
- **TV as good as—or better than—home:** Students hitting campus watch a ton of TV and video—enough to quickly blow through even generous cellular data plans. Use the campus wired and wireless infrastructure to easily and cost-effectively deliver full-scale IPTV services to every residence hall room, as well as every student smartphone, tablet and laptop on campus.

Driving Down Costs and Creating a Greener Campus

Even as they're enabling new experiences, Smart Campuses also use the same shared infrastructure and capabilities to enable new efficiencies. As you connect more devices—sensors, cameras, lighting, vehicles, ID cards—you can begin to streamline and automate many campus services. You can use analytics to identify previously unseen trends or spot anomalies. And you can use that visibility to realize substantial operational savings. Those savings can then be reinvested in the campus to fund additional student service projects, hire more staff, or expand campus facilities, to name just a few possibilities.

At the same time, Smart Campus technologies empower you to use your resources—water, power—much more efficiently. You can reduce your carbon footprint and conserve water. And you can transform your campus into the model of a green institution.

SMART CAMPUS PRE-REQUISITES

New experiences on campus can be a major differentiator to separate your institution from the pack. But you do need to have some technology capabilities in place to enable them. Chief among those pre-requisites: the ability to provide a true “home away from home” connectivity experience on campus.

Connectivity Anywhere and Everywhere

For students hitting campus today, technology is so tightly woven into everything they do, they may not even think about it. The last thing you want to do is force them to start: “Wait, my iPhone doesn’t get a signal in my dorm room?” “You’re telling me I have to log onto the network over and over again just to use Wi-Fi?” “Why do I have to scroll through 50 strange devices and networks just to find my own printer?”

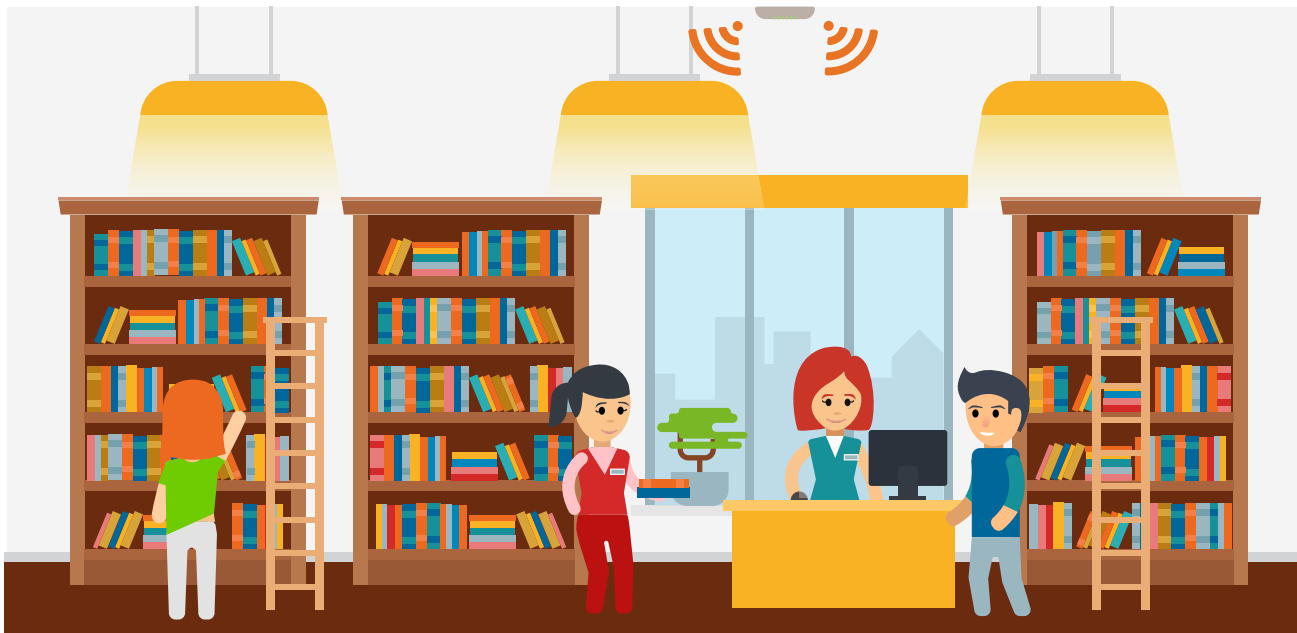
Before you focus on anything else, you need to make sure you’re providing your students, especially in residence halls, with a connectivity experience that’s as simple as home.



- **Wicked-fast Wi-Fi:** Use 802.11ac Wave 2 Wi-Fi access points (APs) to deliver blazing data rates.
- **Navigate challenging airspace:** All APs are not created equal. Look for solutions with state-of-the-art antenna design, channel selection, and interference mitigation intelligence to deliver better connections to every device, every time.
- **LEED construction? No problem:** Many facilities use construction materials that wireless signals can’t penetrate. Deploying an AP in every room eliminates the issue and delivers superior performance.
- **Connect all of those devices:** Use wall-mounted AP and switch platforms that combine great Wi-Fi with wired connections for gaming systems, media players, printers and other devices.
- **Load up on video:** Choose APs and switches with smart IP video handling intelligence that makes it easier and less expensive to bring IPTV services to every room.

Deliver Five Bars of Cell Coverage Indoors

Even when the Wi-Fi is great, students still struggle with spotty cellular network access—preventing them from calling mom, texting with SMS or receiving emergency notifications. You could spend millions on a cellular digital antenna system (DAS). Or, you could use new OpenG technology. Just snap a new LTE module into your existing APs, and extend strong cellular coverage anywhere.



Getting Connected Doesn't Have to be a Hassle

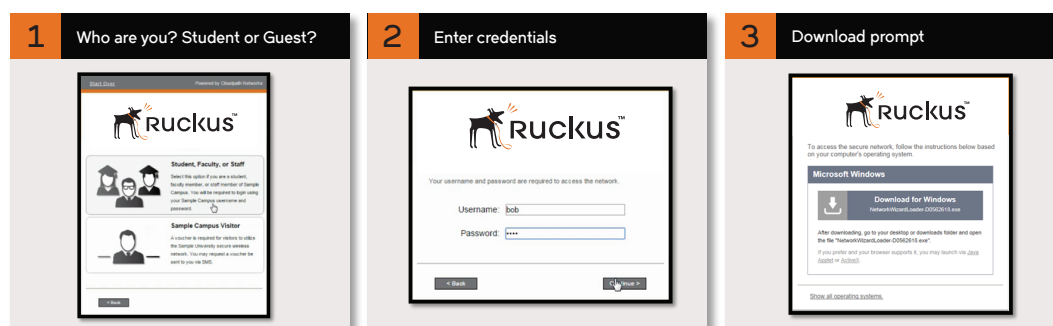
Secure access doesn't have to be a pain for students and a full-time job for IT. Certificate-based access platforms make things a lot simpler.

- **Rock-solid security:** Use the gold standard in encryption, WPA2-Enterprise with EAP-TLS.
- **Ample flexibility:** Support the massive scale of devices on campus, while using policy to tightly control and personalize every connection.
- **Self-service onboarding:** Let students register devices once and not have to think about it again. They won't be prompted for logon credentials for the rest of the semester or academic year.
- **Pre-boarding:** Cut IT some slack in dealing with move-in day, as thousands of new devices hit the network at once. Let students register devices from home, at their convenience, so that when they show up on campus, everything just works.

All of your stuff, exactly where you expect it

In residence halls, students expect to live the way they do at home—using AirPlay to stream video from their iPad over Wi-Fi, playing video games with friends down the hall, connecting to a personal printer without scrolling through dozens of networks and devices. Making large-scale campus networks operate that way, however, is a huge challenge.

Certificate-based onboarding platforms provide a policy framework to correlate multiple devices with one user. Multiple users can share the same SSID, while each student's devices—and only their devices—show up in their personal virtual network, securely separated from other users.



TRUST RUCKUS ON YOUR SMART CAMPUS JOURNEY

Ruckus has been a leader in connecting higher education institutions for many years. Around the globe, college and university IT departments trust Ruckus to help them deliver lightning-fast, reliable wireless and wired connectivity everywhere on campus. Now, we're helping higher education leaders build new smart solutions and experiences to create the campus of the future.









We combine industry-leading Wi-Fi innovations with state-of-the-art wired infrastructure and cloud-managed Wi-Fi solutions, insights from machine-learning network intelligence and location-based services that use the campus network to bring intelligence and decision-making closer to users and devices.

All of these Ruckus solutions use open APIs, allowing you to easily integrate with devices, applications and management solutions from multiple vendors—or even new solutions created on your own camp

Making the Smart Campus Lifestyle a Reality

When you're ready to get started with new Smart Campus experiences, where do you begin? Ruckus and our partners are here to help every step of the way. We have a broad ecosystem of industry-leading IoT partners that deliver ready-to-deploy solutions for smart lighting, building automation, smart campus ID and payment systems, advanced analytics and many other Smart Campus lifestyle use cases.

 Cloudpath <ul style="list-style-type: none"> — Hassle-free, self service on-boarding & pre-boarding — Personal networks — Manage policy for all devices 	 SmartZone <ul style="list-style-type: none"> — Easily set up, manage, and troubleshoot the network — Campus-level view of the entire infrastructure 	 SCI <ul style="list-style-type: none"> — Glean actionable insights from thousands of devices — Machine learning network intelligence
 Access Points <ul style="list-style-type: none"> — Wall-mount AP/switch for residence halls & IPTV — Industry's best outdoor APs — The best connection to every device 	 ICX Switches <ul style="list-style-type: none"> — Industry's best performance/value — Easy-to-manage campus fabric 	 SPoT <ul style="list-style-type: none"> — Track assets — Target services & information — Open APIs

GET STARTED

What will your institution look like five years from now? What will make your campus stand out as an exciting place to live, learn and conduct cutting-edge research?

To prospective students, technology runs through practically every facet of their lives—as ubiquitous as the water they drink and the air they breathe. It's time for your campus to enable a more dynamic and connected digital lifestyle. Give students, faculty and researchers a campus they can't wait to call home.

Ready to start your Smart Campus journey? Contact your local Ruckus account representative or visit ruckuswireless.com/contact

See our Smart Campus solution briefs:

ruck.it/smartcampus-ebook

ruck.it/smartcampus-living

ruck.it/smartcampus-learning

ruck.it/smartcampus-security