

The Secret to Navigating In-Building Wireless: Find the Right Partner

 WHITE PAPER

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Introduction

In-building wireless networks are transforming as technology advancements, increasing user demands, more traffic and new IoT devices lead the change.

Innovations like 5G, CBRS, private LTE and Wi-Fi 6/6E are supporting this explosion in access, traffic and devices. While these applications bring all kinds of opportunities to almost every type of business, it can feel like treading water if you don't understand how these dynamic environments operate—and the infrastructure it takes to support them.

In the past, mobile carriers were big investors in wireless infrastructure. If they knew their customers would be in or near a venue—a high-rise office, arena or shopping district, for example—then they would help fund that facility's wireless infrastructure to provide customers the best experience possible (sometimes even paying a monthly fee to rent space for the infrastructure).

Today, this approach has changed. Because most carriers no longer have the budgets to continue operating this way, the onus is now on enterprises to provide their own in-building wireless.

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But just because carriers are no longer investing in the infrastructure doesn't mean it's not needed. Wireless is viewed as a utility: Employees, visitors, patients, students and staff still expect that level of service. They don't care who pays the bill—they just know that coverage isn't optional. Without it, they might as well be working, studying, visiting or recovering in a space that doesn't have electricity.

This is especially true as organizations attempt to attract younger generations of workers to the office. It's no longer about breakrooms, ping-pong tables or free snacks: It's about offering state-of-the-art technology they can't use anywhere else.

With how quickly things are changing, it can seem impossible to stay on top of these shifts on your own. So how are organizations keeping up? How are hospitals preparing for wearables, augmented reality and IoMT (Internet of Medical Things)? How are schools finding time to build virtual reality and artificial intelligence into curriculum? How can stadiums discover what it takes to roll out biometric screening, 360-degree fan experiences and 5G networks?

The secret lies in recognizing that you *don't* have to know it all. Instead, you need to find a trusted partner to guide your journey: A partner that listens, understands your goals and is just as invested in your success as you are—no matter what it takes to get there.

To help you get started, ask these five questions to find the right in-building wireless partner.

1. Do They Know the Industry Inside and Out?

First and foremost, an in-building wireless provider needs to know what's happening in your market. They shouldn't be asking you about the latest technology trends—they should be leading the conversation by telling you what's up ahead and listening to how these disruptions will impact you.

Each market faces its own challenges and opportunities. The emerging technology and applications that impact manufacturing are much different than those in entertainment. For example: The partner you choose shouldn't approach wireless infrastructure solutions for healthcare and hospitality in the same way. Look for a company that understands your industry and business, how it operates and what's most important—even beyond the boundaries of wireless.

This doesn't mean you need to find a partner that works exclusively with your market (lots of best practices and lessons learned can be carried over from one industry to another)—but it *is* important to know that your provider has a dedicated, in-house team committed to your industry.

An example of why it matters:

An integrator working for a fast-food chain needed a connectivity solution to include in packaged kits for 14,400+ drive-through upgrades involving digital signage and self-order/self-pay touchscreens.



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The integrator found several connectivity products to choose from, but they couldn't find one to match the needs of the fast-food industry and this particular mission. For a project of this magnitude, they needed a solution that offered high levels of performance (to keep customers happy and avoid downtime) while being fast and easy to install. The timeline was so tight that subcontractors were given a specific amount of time to complete each termination. With more than 5,000 technicians and installers working on this rollout across the country, easy training and onboarding were also crucial.

Belden's REVConnect® Connectivity solutions were used to reduce rework and decrease the potential for human error. We created a simple instruction sheet and video to support fast training (within minutes) across all sites. As a result, installers and technicians came in well below the time limits set for terminations.

Because we understood the demands placed on quick-service restaurants—and the importance of getting upgrades up and running quickly while maintaining the customer experience—the chain was able to quickly integrate new wireless technology without lengthy delays or downtime.

2. Will We Be Able to Get Exactly What We Need?

Because technology like 5G, CBRS, private LTE and Wi-Fi 6/6E can coexist to offer high throughput, low latency and high capacity, every in-building wireless situation is unique—which means your approach to cabling and connectivity infrastructure needs to be, too.



You should be able to take any technology or solutions approach you want in order to build the wireless network you need—without worrying about the type of infrastructure that will support it.

Your organization and projects are one of a kind, so how will an off-the-shelf, one-size-fits-all solution give you the best results? It probably won't.

Working with a vendor-agnostic partner gives you the flexibility to choose what works best. Those choices are what should guide your technology decisions—not concern about sticking with a specific platform from a specific vendor.

Once you've identified the necessary technology, your partner should be able to provide end-to-end cable and connectivity solutions that will always work to support it, whether that technology includes PoE lighting, Digital Electricity™, small cells, passive optical networks, a distributed antenna system (DAS) or something else. Your layer 0 should let you connect whatever system(s) you want to put together.

An example of why it matters:

The owners of the Circa Resort & Casino Las Vegas wanted to construct an experience that was different than any other—so they applied their ingenuity to every aspect of the property.

Instead of using dedicated AC power, they wanted to use Digital Electricity (DE) as the backbone power distribution infrastructure to decrease energy use and create an intelligent building. Everything from lights and switches to in-room climate control and wireless access points would be powered with DE.

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This approach required a cabling and connectivity partner that could think outside the box. Not only was the timeline tight, but COVID-19 created its own restrictions, limiting the number of people allowed on the jobsite and preventing check-ins on progress. The project had to be managed remotely while staying on schedule.

Belden Digital Electricity Cables were deployed to support the backbone power distribution infrastructure; they're optimized to safely extend Digital Electricity across the longest distance possible. REVConnect Connectivity solutions were used to speed up installation and termination. As a result, Circa Resort & Casino Las Vegas opened nearly two months ahead of schedule in the middle of a pandemic—a feat possible only with a partner like Belden.

The owners didn't have to sacrifice their vision because Belden's dedicated hospitality team understood the mission. Our solutions were instrumental in helping Circa Resort & Casino Las Vegas bring its vision to life—even though it had never been done before. In addition to lower utility bills, estimated construction cost savings are between \$2 million and \$3 million.

3. Will They Help Us Prepare for the Future?

Because we can't predict what the future has in store, the time to futureproof is now. At the rate technology is changing, you must be prepared today for the applications we'll be using tomorrow—even when we don't know what they are yet.

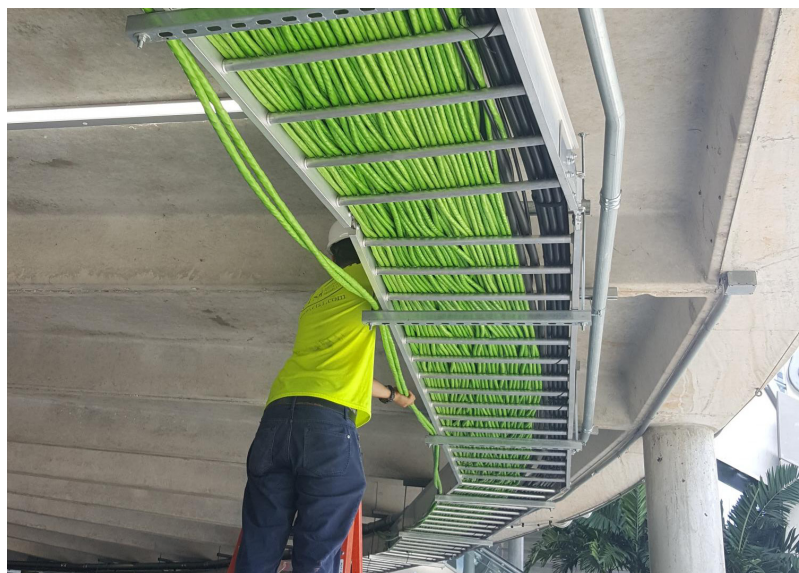
Mobile apps are a good example. In 2008, when the first apps rolled out, there were a few hundred to choose from—and they weren't a crucial part of cell phone usage.

Today, there are millions of apps, with more available to download every day. A few years ago, did we know that mobile apps would be a crucial part of customer service, sales and communication? No—but here we are! Software that was barely in use a decade ago is now a vital part of everyday life.

Technology is moving at much faster speeds than it has before. Take computers, for example. Although the first computer was created decades earlier, computers weren't seen or used in most offices until the early 1990s (and not everyone had a computer at their desk). Today, there isn't such a lag in technology rollout: Once the next generation is available, it's put to use almost immediately.

Case in point: the Super Bowl. Why do fans continue to increase the amount of mobile data they use at games each year? The simple answer: Because they can. If the technology, bandwidth and capacity are there, then technology and applications will quickly increase to use it up.

Your cabling should be expected to outlive the equipment it supports, so it should be able to adapt to the next generation of technology—whatever that brings.



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An example of why it matters:

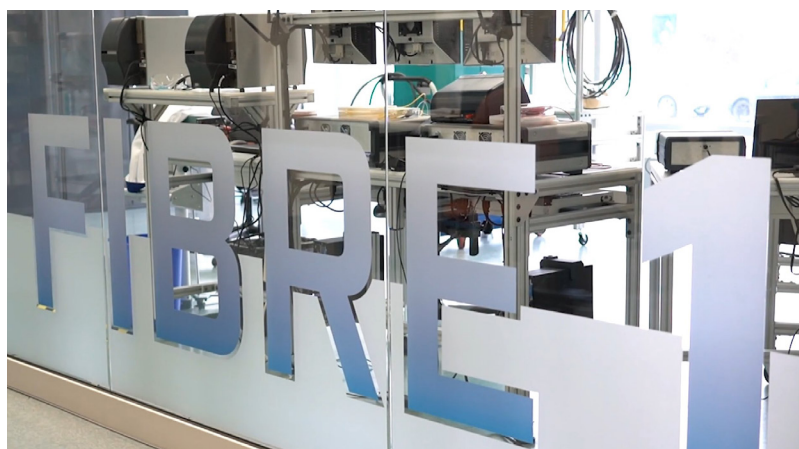
To support improved wireless performance for tens of thousands of fans, as well as media and broadcasters, a mobile carrier decided to invest in a DAS within Hard Rock Stadium. Along with system deployment came the need to power hundreds of radio heads and antennas so the DAS could distribute coverage.

The carrier chose to take advantage of Digital Electricity to power its digital communications infrastructure inside the stadium. Belden's Digital Electricity Cables provide long-distance high-power transmission to hundreds of remote locations. They also power a 5G mobile network that can support new applications, such as wayfinding apps, live streaming from multiple camera angles and football-themed games, as they're integrated into the venue.

Instead of scrambling later to make expensive upgrades or overhauls to infrastructure when the stadium is ready to make these technology investments, they have a futureproof cabling infrastructure in place so they can deploy whatever applications they choose.

4. Do They Own the Manufacturing Process?

When providers don't own their manufacturing process, they have a much harder time pivoting to adapt to requests or sudden industry changes. When providers *do* own their manufacturing processes, then they have complete control to create exactly what you need.



In Belden's case, for example, our F1 Center of Excellence is a place to create custom fiber optic assemblies when off-the-shelf solutions don't meet your needs. If you can dream it, we can do it.

Our Customer Innovation Centers (CICs) offer collaborative environments that let you co-innovate with our expert advisors—sales, technologists, application experts and product engineers—to develop, test, document and deploy solutions to make efficiency, security and innovation goals attainable. You get to see how the solutions we design will work in your environment before they go live.

An example of why it matters:

Recently, we worked with an ISP/technology firm that had its own ideas about how to support fiber optic infrastructure. The only problem? The infrastructure to bring this fiber-management concept to life didn't exist.

The team had an open conversation with Belden about needs and expectations. We met to discuss possible solutions, listening to ideas and feedback based on how installers would work with and deploy components in the field. The partnership resulted in a solution to help them manage data center fiber without compromising on ease of use. This was all possible because we own our manufacturing process, which allows us to create solutions to solve specific problems.

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5. Do They Offer Something Different?

What are the odds of an owner choosing you for their next project if you respond to their RFP with the same products, same prices and same templates as every other integrator?

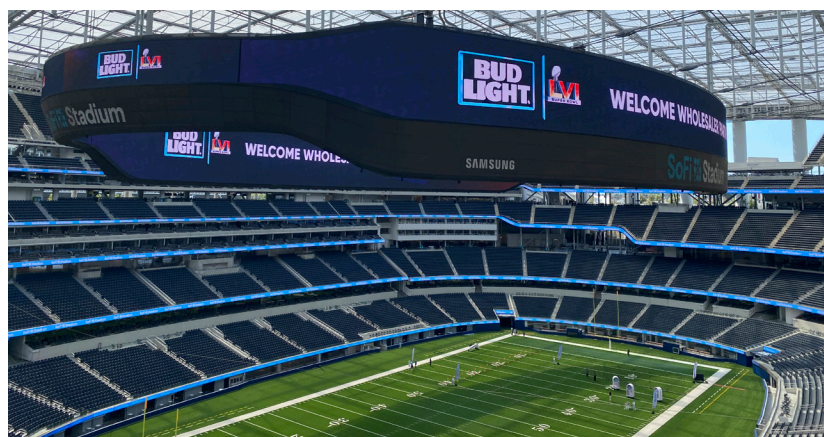
How many integrators take the time to do their research before they start designing or building out an in-building wireless network? Or ask questions about what's most important to the owner, what they struggle with or where they see themselves in five years?

By taking time to do this research upfront, you'll know exactly what the customer is looking for and will be able to find an in-building wireless partner that will help you bring something different to the table: An in-building wireless solution that solves the end-user's problems, aligns with their goals and is different than what the competition is proposing.

An example of why it matters:

When we started working with SoFi Stadium—the first indoor-outdoor stadium ever constructed—it needed a cabling and connectivity system that could support and connect never-before-seen technology, as well as an infrastructure for Wi-Fi, digital ticketing and a DAS system.

This unique approach to fan engagement also called for a unique approach to cabling and connectivity infrastructure. More than 5 miles of Belden Category 6A shielded cabling were installed inside the stadium bowl (manufactured in a custom Rams blue color).



Once the project was under way, the team realized there wasn't enough room to support the DAS they planned on. Instead of carriers bringing fiber to the stadium, Belden created a meet-me room with massive amounts of OSP fiber where carriers could connect to one another and pick up their traffic from inside the stadium. For this space, 11,000 strands of Belden fiber (totaling 57+ million square feet—enough to circle the moon twice!) were deployed, along with Fusion Splice-On Connectors that combine the benefits of fusion splicing with the simplicity of a field-installable connector to improve installation performance and reliability over mechanical splice connectors.

To make every square foot inside the stadium's data center count, Belden also created its Flexible Ribbon Cable specifically for this project. The cable's small OD and superb flexibility make it easier and faster to handle than traditional ribbon cable. Sorting and ribbonization are already complete, which reduces labor resources, costs and necessary tools associated with traditional ribbon cable.

The cabling and connectivity utilized in SoFi Stadium not only help bring the fan experience to life, but they also prepare the venue for 5G and ensure that it seamlessly becomes part of the surrounding Hollywood Park.

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Belden's infrastructure solutions are independent from wireless and active equipment providers. Take any technology or solutions approach to build the network you need, and our vendor-agnostic solutions can support it.

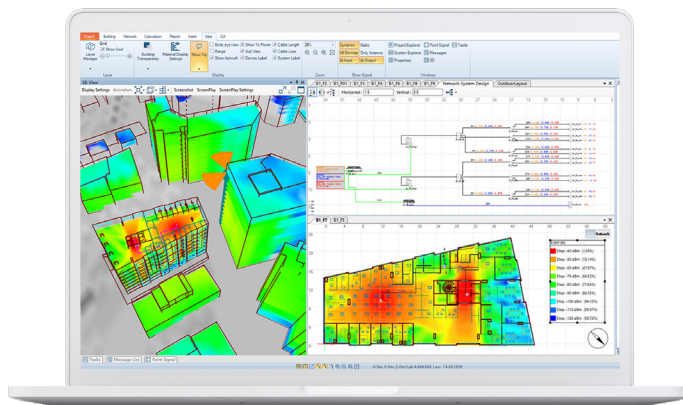
No "turnkey, out-of-the-box" solutions here. You get the flexibility to choose what works best for you. From there, we provide end-to-end cable and connectivity solutions that will always work with your system and network.

While the technologies impacting your industry might be new, the way we work with our clients isn't. That's the reason we've been around for 120 years and continue to evolve amid constant technology innovation.

Our in-house specialists have been part of major wireless projects involving hundreds and thousands of miles of cable and connectivity—from stadiums, entertainment districts and medical campuses to manufacturing plants, offices and government agencies.

Because Belden's products are included in iBwave and Ranplan design platforms, we can be involved from the very start of your in-building wireless project.

To learn more about how we can help with your next in-building wireless project, visit www.belden.com/solutions/enterprise-wireless-solutions.



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