Do you just need a microwave antenna—or a backhaul strategy?
The race is on—how are you running?

Wireless operators are in a race against demand—and there’s no finish line in sight

To keep up with surging numbers of ever-more-powerful connected devices, operators must extend network coverage and increase capacity. That’s the only way they can meet customer expectations—expectations that amount to nothing less than five bars, everywhere, all the time.

Meanwhile, more customers live and work in concentrated, urban areas. Serving these shifting customer patterns with macro sites, micro sites and metro cell solutions is difficult. Another challenge is keeping those sites connected via microwave backhaul links—because, without adequate backhaul, coverage alone won’t get the job done.

That’s why the right solution starts with the right strategy.
Three factors that add up to one big challenge

To create a successful microwave backhaul strategy, operators must consider and weigh the three Cs of microwave backhaul strategy:

**Cost**

In the long term, a bargain antenna may not be a bargain after all.

- Choosing inefficient microwave antennas may force you to use more of them—with the purchase, upkeep and lease costs that come with them.
- Operators may need to purchase expensive additional spectrum or larger antennas to overcome interference issues associated with antennas without low side lobes.
- Additional antennas, tower leases, maintenance and spectrum expenses can quickly eclipse any initial budgetary benefit.

**Capacity**

When quality of service (QoS) declines, so do your subscriber rates.

- Without the backhaul capacity to move traffic, enhanced coverage and capacity solutions such as in-building wireless (IBW) solutions are just wasted effort.
- Many “bargain” backhaul antennas won’t support the higher modulation schemes offered in many of today’s microwave radios, limiting their ability to meet demand.
- Adding more antennas to overcome this gap soon puts you up against the physical limit to the number of antennas you can install.

**Complexity**

New suppliers in the market introduce new variables to network complexity.

- Multi-sourcing components from different manufacturers can introduce problems in compatibility, efficiency, safety and compliance—leading to expensive replacement.
- Working with untested technology suppliers can mean longer and more complicated development procedures, ordering, delivery and installations.

Because each of the three Cs directly impacts the others, it may seem impossible to address every priority at once. Fortunately, there is a partner that can help you improve performance against all three: CommScope® and our Andrew® portfolio of microwave antenna solutions.
CommScope addresses all three Cs to help you plan a winning microwave backhaul strategy

Field-tested for more than 50 years, Andrew® solutions continue to set the standard

CommScope has been an industry leader in developing the standards and the innovations that have shaped microwave antenna systems, improved their reliability and lowered their total cost of ownership. Each microwave antenna is built to the highest engineering standards from superior materials.

Controlling cost

All Andrew antennas are designed to deliver controlled low side lobes for the life of the antenna—not just on day one. That translates to better performance, allowing them to reduce total cost of ownership, even when compared to “bargain” antennas that carry a slightly lower price tag. Smaller, more efficient designs allow for better spectrum reuse, small-pack shipping, greater durability and lighter tower loads that reduce tower and lease costs—helping you control both CapEx and OpEx.

Creating capacity

Andrew microwave backhaul antennas deliver low side lobe performance, superior interference discrimination and support for higher modulation schemes, all of which can translate into greater network data capacity. Plus, as point-to-point signals have to find their way into smaller, more tightly controlled areas, our smaller, more aesthetically pleasing designs help you put links wherever they’re needed.

Clearing complexity

Andrew microwave backhaul solutions conquer complexity with single-source simplicity and streamlined deployments thanks to our global manufacturing footprint. Each component is designed and manufactured to work perfectly with other Andrew products, and, because each product is built to exacting standards, it delivers better performance over a longer operational life—and a more confident migration path.
Andrew antenna solutions can help you meet your challenges—and your budget

Our Andrew Solutions portfolio includes antennas suited for any network challenge and all environmental conditions. While superior performance is always at the top of the list, other considerations like size, cost and survivability come into play as well—and CommScope has the solutions to suit any combination of these factors.

**Sentinel® super-high-performance antennas**

**Class 4 performance in a class all its own**

Sentinel is the first solution to put next-generation performance within easy reach. Offering groundbreaking radiation pattern improvement in full compliance to ETSI Class 4 specifications, this solution delivers around 40 percent better spectrum utilization, yielding a 40 percent improvement in link density. Sentinel offers 10 dB or more off-axis interference discrimination against other products of lesser performance. That means you can use smaller antennas and operate higher modulation schemes for longer, which can deliver significant cost savings and increase revenue. Sentinel’s small footprint comes with the durability to withstand winds up to 250 km/h (155 mph) and is also designed to integrate with radio outdoor units to provide a versatile solution for every backhaul challenge.

**ValuLine® antennas**

**Affordable versatility for extra value**

ValuLine antennas are available in a range of sizes from 0.2 m (8 in) to 1.8 m (6 ft) in diameter, in single- and dual-polarized configurations, and are ideal for systems operating between 5.925 GHz and 86.0 GHz. Their low-profile design makes them easy to install and align, while reducing wind loads and improving aesthetics. Meeting stringent ETSI and FCC regulatory specifications, ValuLine offers low side lobes for increased spectrum efficiency and network performance.

**Terrestrial microwave (TMW) antennas**

**High performance across the board**

Our complete catalog of TMW solutions covers all the bases, so there’s no challenge we can’t meet. CommScope delivers superior solutions in our ultra-high performance antennas, high cross-polar discrimination antennas, high performance parabolic and standard parabolic microwave antenna ranges.

**ExtremeLine® antennas**

**The strength to survive anywhere**

In response to rises in wind speeds across the world we have developed our most rugged family of point-to-point backhaul antennas. ExtremeLine’s superlative survivability delivers peak performance in the most remote and environmentally hostile places on Earth.

**ValuLine e-band antennas**

**Complete e-band compliance**

To take advantage of microwave backhaul in the 71.0 to 86.0 GHz range, you need an antenna engineered to satisfy strict regulatory controls governing off-axis radiation. ValuLine e-band antennas are fully compliant, delivering all the potential of e-band frequencies in a compact form factor. Many antennas on the market can’t guarantee full compliance—making ValuLine e-band the smart choice for operators.

**ValuLine+ antennas**

**Go the extra mile with ValuLine+**

The newest addition to the ValuLine family of antennas is ValuLine+, CommScope’s long-haul microwave backhaul solution. It’s the big solution for your biggest backhaul challenges, available in 8 ft (2.4 m), 10 ft (3.0 m) and 12 ft (3.7 m) diameters. Low side lobes offer higher interference immunity, even over long links—and its dual-polarized design increases network capacity. Plus, its two-piece reflector allows for reduced transportation costs. Built with the same cost-efficient design concept as our other ValuLine antennas, ValuLine+ helps your backhaul network go the extra mile—or farther.

Whether your network has to operate on the windswept peak of the highest mountain, in the face of category 5 hurricanes or in a corrosive industrial or seawater environment, ExtremeLine can help your network weather the storm—and the aftermath.
Superior connectivity solutions for your backhaul strategy
When it comes to connecting antennas to radios, CommScope makes every connection count with high-quality, high-strength transmission line solutions that protect and enhance the performance of your network.

HELIAX® elliptical waveguide Installs fast, installs reliably
Our broad family of HELIAX cabling and connector solutions is the ideal feeder for systems operating between 3.40 and 26.50 GHz. Every cable and connector is designed for fast, easy installation, fewer handling problems and top performance in all temperatures and all environments. Available in long lengths and with a variety of VSWR performance and jacketing options, HELIAX offers the perfect solution for your challenge.

Pressurization equipment Drier lines for higher performance
CommScope helps your network connections defeat performance-sapping moisture with a broad family of pressurization solutions. We help your lines stay dry so your network stays at peak performance. From a wide variety of dehydration solutions to gas distribution manifolds, we offer the technology and support you need to operate with confidence.

Interconnect Transitions for every condition
CommScope’s family of flex-twist and rigid waveguide products provide a complete range of connectivity solutions between 3.40 and 40.00 GHz. All solutions are designed to work together, in all temperatures and every environment.

Connect to new technologies with CNT® braided cable and connector solutions
Flexible, reliable and built for real-world challenges, CommScope’s CNT solutions include PIM-reducing braided cable, connector and accessories. Available in a variety of solutions ranging from general to riser to direct burial applications, CNT connects indoor and outdoor units wherever your network needs them.

Waveguide mounts
No matter where your antenna is sited, you can count on the strength of steel supports from CommScope to manage your critical waveguide installations. We offer a full line of brackets, bridges and mounts to keep your connections sound.

Network planning to put your strategy into action
When it comes to building an effective network strategy, the most important step comes before the first antenna goes up or the first cable is connected. It’s the planning step—and doing it well means greater capacity, less interference and more reliable microwave backhaul over the long term. CommScope creates and delivers strategic planning tools that pave the way for a successful implementation and deployment of our solutions in any network. It’s about planning ahead, thinking ahead and seeing ahead of every network challenge.

iQ-link® suite of planning tools from Comsearch, a CommScope company
iQ-link is a family of solutions that makes it easy to quickly plan and manage efficient microwave backhaul links. This proprietary software suite, available with enterprise or individual user licenses, easily imports existing planning data to help plan new or upgraded network paths. iQ-link supports the full range of globally used frequencies for microwave backhaul to help reduce wasted spectrum and is ideally suited to optimize networks to maximize the performance and cost advantages of Sentinel antennas. When dollars count, iQ-link is the key to squeezing every last penny out of your network’s performance.
The right solution starts with the right partner

CommScope has taken the long view on wireless communications for decades. To us, that’s the only way to develop technology and build expertise that keeps our operator customers ahead of the curve—and ahead of the competition.

When operators face backhaul challenges

**PartnerPRO™**

in controlling cost, improving capacity and simplifying complexity, CommScope has the solutions they need to make sure their backhaul network doesn’t create an expensive and cumbersome bottleneck. Our Andrew microwave backhaul antenna solutions cover the full range of these challenges, with products that connect every part of your backhaul network, reliably and efficiently. That is CommScope’s promise.

Let’s have a conversation about your backhaul strategy—and how CommScope can make it work better for you.

Get more insight into your infrastructure

CommScope Infrastructure Academy

We believe in sharing our expertise. That’s why we offer instruction on all aspects of our solutions and the industries they support through the CommScope Infrastructure Academy. Our specialized courses can take you through the whole universe of network infrastructure, including the critical role of microwave backhaul.

As an online resource, the Infrastructure Academy is available whenever you are.

Visit [www.commscopetraining.com](http://www.commscopetraining.com) to enroll.
We’re proud to be a part of your network’s story.

Here at CommScope, we embrace our role as a trusted resource, partner, and facilitator. We create the infrastructure that connects the world and evolves with every advance in technology. By investing all of our capabilities, resources, relationships, and products into your toughest challenges, we continue our long history of solving problems together—paving the way for new ideas and fresh ways of thinking.

We’re a trusted resource and partner around the world because we’re invested in you: your people, your networks, your success. It inspires us to build relationships and infrastructure… connect people and technologies across protocols, oceans, and time zones… and share what we learn along the way. We’ll never stop connecting and evolving networks for the business of life at home, at work, and on the go.

This is our promise to you.
This is CommScope.