



CommScope Era™ C-RAN antenna system

In-building wireless capacity without constraints

COMMScope®



Welcome to Era, a new generation of in-building wireless delivery

Delivering wireless connectivity and capacity indoors has always been a challenge. Employees, customers and visitors manage to find those infamous dead spots where the outdoor macro networks can't reach.

Dropped calls and slow, unreliable data connections are no longer acceptable. Building owners and enterprises need consistent mobile service to keep employees productive, building tenants satisfied and customers connected. They count on the mobile operator's outdoor macro network for this, but it can't provide coverage and capacity to the same degree indoors that it can outdoors.

An in-building wireless (IBW) solution such as a traditional analog distributed antenna system (DAS) is an effective solution for a commercial building. However, it can be expensive when extended to cover a campus or office park due to the need for dedicated head-end equipment in each building—or multiple dedicated fiber strands from a centralized head-end to each building.

Traditional systems also struggle to match capacity to demand, as users shift location based on time of day, day of week or ad hoc events—leaving some users unserved while, elsewhere, capacity remains idle.

Now, there's a new in-building wireless solution that:

- Consolidates baseband functions into a single, less complex head-end instead of requiring one in each building
- Flexibly and dynamically allocates baseband capacity across many buildings
- Requires less fiber and can even share fiber with other services for major deployment cost savings

This creates an entirely new and efficient model for in-building wireless solution coverage and capacity.

The growing in-building wireless solution challenge

- Office workers are less deskbound, relying more on mobile phones instead
- Shoppers expect to be able to look up price comparisons and product reviews
- Hospital physicians need to be reachable wherever they are
- Travelers need to keep up with emails and view local information online

Introducing Era™: the first C-RAN antenna system

Era C-RAN antenna system is built on C-RAN architecture that consolidates and simplifies distributed antenna system head-end resources and flexibly allocates capacity where and when it's needed across the covered area through a simple drag-and-drop software interface.

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Taking the baseband to the cloud

Cloud and centralized radio access networks (C-RAN) represent a shift in the way operators are managing wireless capacity. This breakthrough architecture offers substantial advantages in both capex and opex. Era extends C-RAN advantages to in-building wireless solutions.

Like a distributed antenna system, CommScope's Era C-RAN antenna system employs a network of interconnected antennas that provide users access to the wireless network. However, unlike traditional distributed antenna system solutions, CommScope's C-RAN antenna system coordinates wireless capacity throughout a campus, office park or even a metro area from a centralized head-end location or even from operators' existing C-RAN hubs.

Era has been designed to offer superior flexibility, simplicity and economy. Here's how:

- **Baseband functions can be moved to the cloud.** The solution's Wide-area Integration Node (WIN) delivers baseband capacity to a building or campus from a remote C-RAN hub or other base station facilities kilometers away. Operators can now extend in-building coverage and capacity leveraging their existing base station facilities. This also greatly reduces the head-end footprint of the in-building wireless solution system within the covered buildings.
- **All-digital fronthaul transport reduces fiber strands to the buildings and allows sharing of an existing fiber network with other services.** This flexibility greatly reduces fiber transport costs.
- **Capacity can be dynamically shared across many buildings.** The solution adjusts levels to meet variable demand, thanks to its capacity routing capabilities.
- **Each building no longer requires its own dedicated head-end.** This reduces hardware, real estate and power costs. The single campus head-end can be placed just about anywhere.
- **The consolidated head-end requires less equipment.** Since its Common Public Radio Interface (CPRI) baseband interface eliminates the need for radio-frequency (RF) hardware and interfaces—taking up less space and less operational budget.
- **Access points offer a wide variety of customization options.** The Era solution's access points can be fitted with various antenna types and power levels to suit indoor, outdoor or mixed deployments.



The right solution at the right time

- [Cisco VNI](#) forecasts that mobile data traffic will grow seven-fold from 2016 to 2021
- Industry analysts agree that 80-85% of all mobile communications happen indoors
- A CommScope study recently found that 86% of building managers and owners believe good in-building wireless solution coverage improves property value, yet only 2% of all enterprise buildings have an in-building wireless solution

Savings by the numbers

up to
92% less
baseband head-end space

up to
90% less
C-RAN hub space

up to
89% less
fiber strands utilized

The anatomy of the Era C-RAN antenna system

- The **Wide-area Integration Node** allows an operator to bring in baseband signals from multiple remote locations kilometers away to fully leverage C-RAN architecture in its hubs. This feature also reduces the amount of on-site head-end equipment by up to 90 percent.
- The **central area node** is typically located at the campus hub. It digitizes baseband RF signals, combines signals from different operators and distributes them to multiple venues. The capacity routing function within the central area node enables the C-RAN architecture. With capacity routing, a mobile operator or neutral host can allocate mobile capacity in a completely granular way—by operator, sector or channel—to individual buildings or even to specified access points within a building.
- The **CPRI** provides a simpler, all-digital CPRI interface with the operator's baseband unit. By eliminating digital-analog conversions, the CPRI digital donor-equipped head-end is smaller and uses less energy to operate and cool.
- The **transport expansion node** is an expansion node connected to the central area node via single- or multimode fiber. Transport expansion nodes are located throughout the venue coverage area.

- **Carrier access points** feature external antenna ports for performance, aesthetics and signal shaping, and allow embedded MIMO support to deliver top data speeds. Other benefits include:

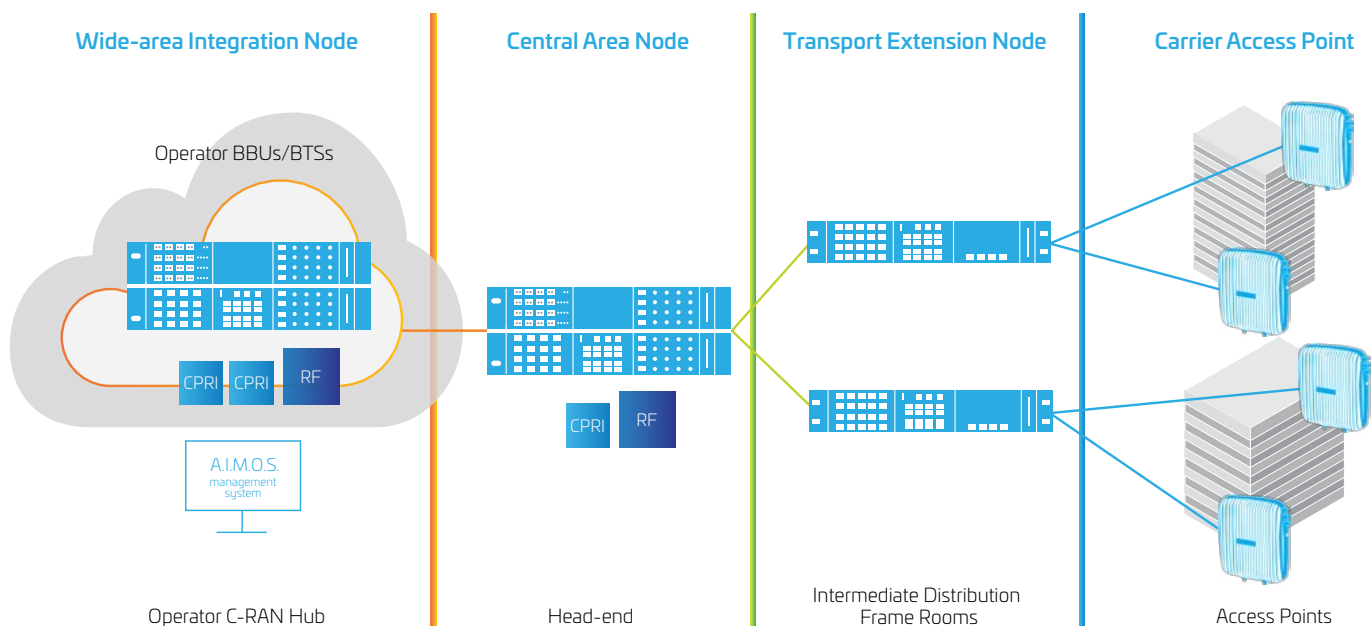
- A range of power levels to economically cover large indoor and outdoor spaces
- Outdoor and plenum ratings to allow widest variety of deployment scenarios
- Copper or fiber connections to suit short or long cable runs
- Power over category cable or remote power through hybrid fiber support
- Daisy-chaining capability for additional carrier access points or other IP device such as a Wi-Fi access point or IP security camera



- **Category 6A and fiber cabling:** The all-digital solution leverages IT-standard copper and fiber-optic infrastructure, making it easy and economical to deploy and manage. Category 6A cable replaces the expensive and difficult-to-install coaxial RF cables used in analog distributed antenna system solutions.

CommScope provides some of the most widely-used IT structured cabling in the world, including the trusted NETCONNECT, SYSTIMAX® and Uniprise® structured cabling systems.

Era moves baseband into the cloud





Flexibility, savings—and room to grow

Era makes it simple for operators and enterprises to work together to provide exceptional indoor coverage and capacity that's easily integrated, flexible, economical and has room to grow over the long term.

Easily integrated: Because operators can use existing baseband facilities to support new in-building wireless solution deployments, the incremental cost is greatly reduced over conventional in-building wireless solution integration models.

Flexible: The system's software-based drag-and-drop capacity allocation lets you deliver capacity where it's needed. The carrier access point offers freedom to deploy indoors or out, on either copper or fiber infrastructure. Carrier access points are frequency optimized with transmit power to cover large spaces.

Economical: C-RAN architecture and capacity routing reduce the need for head-end equipment, space and power. It lets you place the head-end where it costs the least, and requires less power and less costly operational support. Digital signal transmission allows sharing of fiber infrastructure for reduced fiber costs. The C-RAN antenna system uses standard IT Category 6A and fiber cabling that installs quickly and economically.

Comprehensive monitoring and management: Era is fully supported by A.I.M.O.S management system for C-RAN antenna system, distributed antenna systems, and repeater solutions. A.I.M.O.S. supervises and monitors the operation of all active system elements to provide robust fault, configuration, performance, security and inventory management, all through an intuitive graphical user interface. Standards-based northbound Simple

Network Management Protocol (SNMP) and Simple Object Access Protocol (SOAP) interfaces enable integration with third-party network management systems. A.I.M.O.S helps minimize downtime while reducing operational support costs.

Room to grow: The system's software-based C-RAN platform allows for easy expansion, while its frequency-agnostic head-end and distribution components open the door to adding new frequency bands.

The economics of centralization

A network's investment in fiber infrastructure is an investment in its future. The Era solution helps improve the economics of that investment by leveraging existing C-RAN architecture to serve multiple deployments.

The Wide-area Integration Node leverages fiber connectivity to take most of the head-end out of the enterprise and move its functions to the operator's own hub—with better security, simpler maintenance and more efficient power use. It all adds up to significant savings, both in equipment and operations.

When you can cover vast parts of a city from your existing hubs, you're leveraging the economics of centralization.

Innovation built on a proven foundation

CommScope's C-RAN innovations are built on the all-digital architecture pioneered and proven in our [ION-E® enterprise DAS solution](#). ION-E is our all-digital, IT-convergent in-building wireless solution and an exceptional choice for discrete areas that require a dedicated head-end, such as a standalone office building. Era incorporates the advantages of ION-E, including:

- Support for all carrier frequency bands and network technologies through frequency-agnostic feeder and transport modules
- A simplified solution design and implementation through all-digital fronthaul infrastructure
- Easy setup and ongoing operations through automated hardware detection and drag-and-drop traffic routing
- Reduced material and installation costs through use of Category 6A or fiber-optic cable, rather than coaxial cable, all the way out to the system access points.
- The ability to share cabling infrastructure with other IP applications such as Wi-Fi and security cameras

The Era C-RAN antenna system and ION-E are fully compatible with each other. Both systems can be combined within a single deployment, providing even more flexibility.



Breakthrough technology, breakthrough economics

With the arrival of the Era C-RAN antenna system, operators and enterprises have a better option for their most pressing in-building wireless solution needs.

- Since its Wide-area Integration Node allows multiple deployments to centralize baseband functions at the operator's hub, it completely changes the economics of in-building wireless solutions.
- Since its C-RAN architecture consolidates head-end functions in a single, remote location, the system is more affordable to operate and maintain your in-building wireless solution.
- Since it offers a CPRI interface, the system's head-end takes up less space and requires less energy.
- Since its carrier access points offer extensive flexibility in location, power levels and antenna design, the system lets you plan indoor wireless coverage that extends from parking level to penthouse, from lobby to courtyard.
- Since it operates on proven technology and IT-convergent infrastructure, the system lets you deploy for less cost and in less time.

For all these reasons and more, CommScope's Era C-RAN antenna system is the breakthrough solution that puts quality in-building wireless solution coverage within reach of wireless operators and building owners everywhere.



**Experience a new level
of in-building wireless
performance today.**

Contact your CommScope representative to get your free analysis so you can see up front how much Era can improve the efficiency and economics of your next in-building wireless solution deployment.

[CONTACT US](#)

CommScope pushes the boundaries of communications technology with game-changing ideas and groundbreaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world's most advanced networks. It's our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com.

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