COMMSCOPE®

Distributed Coverage and Capacity Solutions

Deploy anywhere. Cover everywhere.

Expanding the frontiers of the wireless world

Wireless users today expect the ability to place calls and access data everywhere, all the time. Whether deep underground, in crowded venues, or inside sprawling high-rises, the ability for wireless providers, transportation operators and enterprise owners to deliver wherever-whenever wireless coverage is critical for maintaining customer loyalties.

CommScope can help. Our Distributed Coverage and Capacity Solutions (DCCS) deliver reliable wireless coverage virtually anywhere—in vast stadiums and tall buildings, dense urban areas and even deep underground.

Since 1988, we've built distributed antenna systems (DAS) in the world's most challenging locations. Unique, customized solutions that address today's coverage requirements and that are capable of evolving to accommodate future technologies and coverage expectations.

A tsunami of data use is migrating indoors

- Nearly 80 percent of mobile data consumption is occurring indoors
- By 2018, 1 billion employee-owned smartphones and tablets will be used in the enterprise
- Only 2 percent of the 30 billion square meters of indoor commercial real estate is covered by in-building wireless service
- 4 million DAS nodes are predicted by 2018

A global leader in innovation

[1988-1994]

The longest undersea tunnel
CommScope's RADIAX®-based communication makes construction of the Chunnel possible, linking Dover, England and Calais, France.

The first multi-operator Distributed Antenna System (DAS)
CommScope implements the first multi-operator cellular DAS with operational radio at Denver International Airport.

[1995-1999]

Deep underground in the Far East
CommScope delivers the first multi-operator cellular/paging DAS in the Hong Kong underground metro, which serves 2.5 million riders daily.

Crossing the Great Belt in 10 minutes
CommScope deploys heterodyne bi-directional amplifier technology at Denmark's Great Belt Link railway tunnel, which spans 16 km of ocean.

[2000-2006]

World-class athletes, world-class technology
At the 2000 Olympic Games in Sydney, Australia, CommScope DAS at 30 buildings and venues helps connect athletes from 199 nations.

The world's most-watched event
CommScope deploys DAS solutions at the nine stadiums and neighboring metro system serving the 2006 FIFA World Cup in Germany.

YOUR NETWORK RUNS ON COMMSCOPE™

Intelligent. Integrated. Efficient.

Commscope DAS solutions deliver far more than a patchwork of components and cables. Each is an integrated, single-source system that's built from the ground up to deliver outstanding reliability, quality of service and energy efficiency.

We don't simply solve coverage and capacity challenges. We solve them in the most effective and efficient way possible, applying our expertise and advanced technology to build solutions that address connectivity, energy use, maintenance costs, and long-term adaptability.

Unlike other industry suppliers who use components from a patchwork of manufacturers, CommScope is a true single-source provider, building integrated solutions that incorporate CommScope components. As a result, system compatibility is ensured, which leads to more flexible deployments that save space, consume less energy, and reduce overall costs.

The result? A proven record of innovation, during which we have become a trusted partner of wireless service providers and enterprises around the world:

End-to-end service and support

Drawing on more than 75 years of experience and more DAS deployments worldwide than any other provider, we have the expertise and resources to make your project a success.

No matter the size, shape or scale of your venue, we can build a distributed coverage solution that optimizes network performance, while offering ongoing support at every phase of deployment and beyond—from installation and setup to maintenance and future expansion.

From installation and setup to maintenance and future expansion, we have the expertise and resources to make your project a success.

[2007-2010]

The tallest building on Earth
CommScope delivers multi-operator DAS solutions for the Burj Khalifa in Dubai, the world's tallest building.

World Cup success
For the 2010 FIFA World Cup, CommScope connects 10 stadiums, along with neighboring hotels, malls and public venues, in nine cities.

For more than 75 years, through its Andrew brand, CommScope has been revolutionizing the way the world communicates.

[2011-Present]

The most famous venue in America
CommScope DAS designs and deploys state-of-the-art consumer and emergency services coverage for Madison Square Garden in New York City.

The longest tunnel in the world
CommScope delivers a unique DAS solution for the 57 kilometers of the Gotthard Base Tunnel, where 250 km/h trains will speed below the Alps starting in 2016.

The biggest game of the year
CommScope upgrades AT&T Stadium's network to high-performance LTE in time for the 2011 Super Bowl and in 2015 for the NCAA Championship.

High-speed wireless in Germany's high-speed rail network
CommScope installs in-train repeaters, part of a communications system overhaul, for Germany's ICE train system, which connects all of Germany's major cities by express train travel.

Vital safety communications Down Under
When Australia's largest public utility began construction of an $800 million upgrade to its infrastructure, it turned to CommScope and its ION-M® and RADIAX radiating cable solutions to ensure seamless communications for its tunnel workers.

Deep underground in the Eternal City
CommScope deploys a state-of-the-art wireless network for Rome, Italy's Metro, upgrading its aging system while serving its more than 330 million annual passengers.

Top-level performance. Bottom-line value.

Customer loyalty is fleeting

- Up to 42 percent annual customer churn is occurring in the U.S.
- Up to 38 percent annual customer churn is occurring in Europe
- Network performance ranked #1 as the key to loyalty
- 75 percent of operators maintain network quality and coverage is a primary competitive differentiator

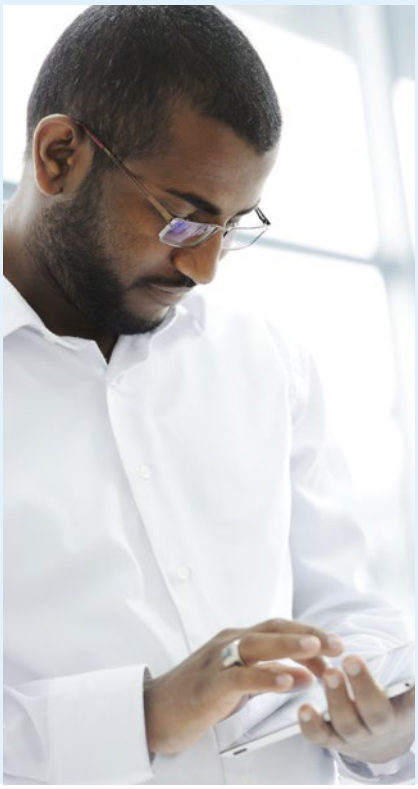
CommScope is a worldwide leader in DAS technology, with many of our advances now industry standards. Our solutions are flexible and energy efficient, with total integration that streamlines installation, simplifies maintenance, and minimizes costs—all within a compact, space-saving footprint.

As the leading manufacturer of DAS equipment, we continue to establish a record of firsts:

- The first to develop an off-air repeater solution with integrated interference cancellation.
- The first to use heat pipe technology for active thermal management in high-power optical DAS repeaters allowing for better MTBF in a smaller form factor.
- The first to build a fully integrated, multiband/multi-operator optical DAS platform.
- The first 10-Gigabit DAS solution.
- Our relentless focus on innovation shapes everything we do. Each of our products is designed and built with an eye toward integration. As a result, our end-to-end solutions require fewer components and less installation space, reducing hardware and installation costs while also saving energy.

Looking to the future, we are developing the next generation of DAS technology, featuring distributed intelligence that will allow for even greater interoperation among system components. Our focus is on leveraging leading-edge technology to create solutions that work simply, are more flexible, smarter, and efficient.

It all adds up to the highest possible quality of service, at the lowest total cost of ownership.



SUCCESS STORY

Piloting connections and coverage at Dubai Airport

The space

At 11 stories tall—with over 19 million combined square feet of floor space—Concourse 2/Terminal 3 at the Dubai Airport is the world's second-largest building*, serving over 40 million travelers annually.

The challenge

Providing wireless coverage in such a unique space for so many wireless users was no ordinary task. The main terminal, concourse and parking lot are all underground, and the building lacks sufficient vertical risers for wireless infrastructure.

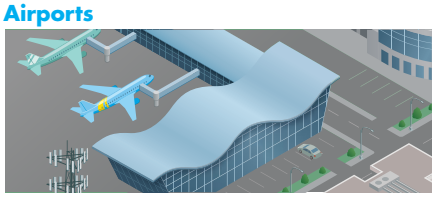
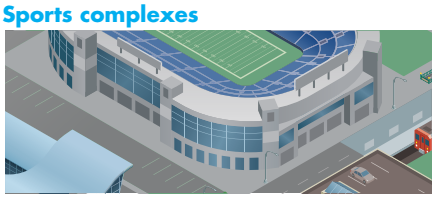
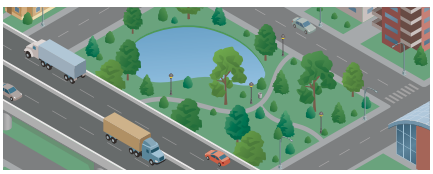
The solution

To meet the challenge, our experts developed an active solution incorporating our most advanced technology. The result: a virtually invisible, future-proof DAS that handles tens of millions of connections each year.

- We deployed a fiber-optic distribution system to provide large, high-capacity cells for all wireless services, including GSM900/1800, UMTS and Tetra.
- Our solution supports up to three commercial wireless operators, plus airport operations and police communications.
- We extended GSM and UMTS coverage into the Dubai Metro Red Line, the world's longest automatic train, connecting Terminal 3 to Terminal 1.
- To ensure seamless integration and prepare for future expansion, we implemented our system while the concourse and terminal buildings were still under construction.

*By floor space.

Diverse venues. Unique challenges. One CommScope.

Application Venue	Requirements	CommScope Solution
Airports 	High traffic profile, capacity; expandability; shared infrastructure; centralized network management system; public safety	ION® optical DAS, Andrew DAS antennas and passive devices, RF and fiber cables RADIAX cables, Node A Series repeaters,
Railways/metros 	Upgradeability; centralized network management system; limited site access and space; high reliability and redundancy; public safety	Node AM in-train repeaters, ION optical DAS, Andrew DAS antennas and passive devices,RF and fiber cables
Sports complexes 	High traffic profile, capacity; shared infrastructure; centralized network management system; limited space and antenna locations; visual aesthetics; public safety	ION optical DAS, Andrew DAS antennas and passive devices, RF and fiber cables
Office buildings/municipalities 	High QoS, high traffic profile; outdoor interference control; low visual impact; shared infrastructure; public safety	miniRepeaters,Node A digital off-air repeaters, ION optical DAS, Andrew DAS antennas and passive devices, RF and fiber cables
Healthcare 	No interference with medical equipment; prevent coverage from sensitive areas; shared infrastructure; public safety	ION optical DAS, Andrew DAS antennas and passive devices, RF and fiber cables
Outdoor DAS 	High power; shared infrastructure; centralized network management system; public safety	ION optical DAS, Andrew base station and DAS antennas, RF and fiber cables
Academic campuses 	High QoS, high traffic profile; indoor and outdoor capacity; outdoor interference control; low visual impact; shared infrastructure; public safety	ION optical DAS, Andrew base station and DAS antennas, RF and fiber cables
Hotels 	High QoS, high traffic profile; outdoor interference control; low visual impact; shared infrastructure; public safety	miniRepeaters, Node A digital off-air repeaters, ION optical DAS, Andrew DAS antennas and passive devices, RF and fiber cables
Shopping malls/museums 	High QoS, high traffic profile; outdoor interference control; low visual impact; shared infrastructure; public safety	miniRepeaters, Node A digital off-air repeaters, ION optical DAS, Andrew DAS antennas and passive devices, RF and fiber cables

A comprehensive, consultative approach

We offer extensive wireless expertise, both directly and through our CommScope PartnerPRO® network.

As a cost-effective resource for smaller venues, our Partners are critical problem solvers who leverage CommScope technology to deliver real-world solutions that make a difference in your business. All are backed by our warranty that ensures the success of your network.

Recognizing the unique challenge of requirements of each venue, we provide personalized support and management through every phase of a network deployment:

Pre-construction

- Complete site survey, including floor plans, equipment locations and potential impairments
- RF survey to gauge interference and signal propagation
- Preliminary design and statement of work outlining the project requirements and specifics
- Detailed system design, validated with a preconstruction survey to finalize cable routing and equipment locations
- Facilitation of jurisdictional approvals and authorizations from wireless service providers and public safety authorities

Construction

- Expert installation of all components
- Network activation, commissioning, and performance verification and testing
- Connection to wireless operator base station, detailed professional reports, close-out package, and final system checks to ensure a successful launch

Support

- On-site operations and maintenance
- 24/7 technical support helpline
- Customer trouble ticket reporting and score cards
- Global Network Operations Center (NOC) for CommScope DCCS products run by CommScope DAS experts with differentiated SLA levels

SUCCESS STORY:

Connecting 100,000 fans for The Big Game

The space

At a cost of more than $1.3 billion, AT&T Stadium (formerly Cowboys Stadium) boasts the world's largest column-free interior and one of the world's largest high-definition video screens—50 yards across—the latter to entertain a seating capacity that exceeds 105,000.

The challenge

When AT&T Stadium hosted the 2011 Super Bowl, it needed to accommodate the wireless demands of tens of thousands of fans, media, and emergency response agencies—no easy task.

The solution

Building on our 2008 DAS deployment at the stadium, we modified our existing CommScope system with a portfolio of enhancements:

- Structured cable and wireless tie-ins supporting multiple services and applications
- A robust Wi-Fi backbone
- Support for five commercial wireless carriers, plus special police, fire and federal agency services
- Game-day communications capabilities
- Enhanced LTE capacity to meet increased demand
- Ongoing remote monitoring and maintenance
- Recent upgrades for MIMO

For more information

Learn more about DAS and wireless networks in our thought leadership white papers:

Technical considerations for a neutral host DAS: A neutral host DAS provides attractive QoS and financial benefits for both venue owners and wireless carriers. But designing, commissioning and maintaining a neutral host DAS can be challenging. This paper details key issues involved with hosting a neutral host DAS, including:

- Capacity and coverage
- Interference
- System commissioning and optimization
- ROI

Untangling the DAS versus small cell question:

Choosing the right wireless solution is a growing concern for network operators and building owners as they seek to optimize the performance of their network.

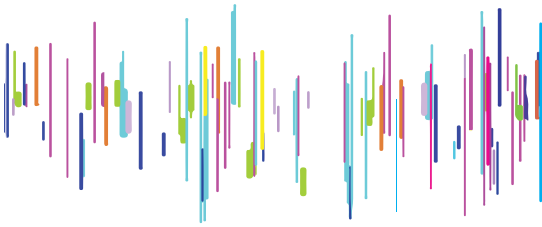
Will it be DAS? Or small cell? This paper will help you make an informed decision, explaining the distinctions between DAS and small cell networks and how each impacts support of your specific applications, while offering practical insights on the following:

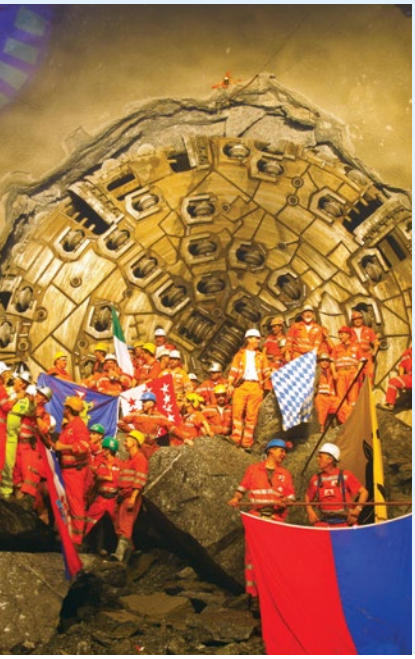
- Multicarrier support
- Scalability
- Quality of service
- Cost

PIM requirements must increase to support evolving DAS systems

Reducing PIM is a critical network concern—one directly related to performance and subscriber satisfaction. This white paper provides a detailed look at our comprehensive portfolio of advanced passive components that optimize signal quality.

Visit www.commscope.com to download a copy of these and other thought leadership articles.





SUCCESS STORY

Reliable connections at 250 km/h—under the Alps

The space

As the world's longest rail tunnel, the Gotthard Base Tunnel is a masterpiece of engineering and construction, with two bores running 57 kilometers between Switzerland and Italy.

The challenge

In addition to its extraordinary physical infrastructure, the Gotthard Base Tunnel incorporates an extraordinary wireless infrastructure, delivering voice and data connectivity to its passengers as they travel between Switzerland and Italy at speeds up to 250 km/h.

The solution

It accomplishes this with a customized CommScope network that is one of the wonders of modern transportation, incorporating:

- A custom DAS capable of seamless, high-speed handoffs of wireless in one of the world's most challenging underground environments
- An extensive GSM-R system with multiple hardware and system redundancies, providing 99.999 percent communications reliability
- Support for multiple services, including operational frequency bands for Tetra/Tetra Pol, GSM-R, and all frequency bands for GSM900, DSC 1800 and UMTS commercial wireless technologies
- Complex coordination with project contractors for the unique build of the tunnel

CommScope (NASDAQ: COMM) helps companies around the world design, build and manage their wired and wireless networks. Our network infrastructure solutions help customers increase bandwidth; maximize existing capacity; improve network performance and availability; increase energy efficiency; and simplify technology migration. You will find our solutions in the largest buildings, venues and outdoor spaces; in data centers and buildings of all shapes, sizes and complexity; at wireless cell sites and in cable headends; and in airports, trains, and tunnels. Vital networks around the world run on CommScope solutions.

COMMSCOPE®

www.commscope.com

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

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