



The bridge to possible

Brochure  
Cisco public

# Cisco Ultra-Reliable Wireless Backhaul for Fixed Infrastructure and Mobility

---

# Contents

Wireless solutions for industrial applications	3
Cisco Ultra-Reliable Wireless Backhaul products portfolio	8

---

Reliable, scalable, easy to install, and suitable for the most demanding wireless applications, Cisco® Ultra-Reliable Wireless Backhaul is a leading-edge solution for vehicle connectivity for mission-critical applications. Developed by Fluidmesh Networks – now part of Cisco – the solutions portfolio covers Point-to-Point (PTP) and Point-to-Multipoint (PTMP) links as well as complex mesh networks and high-throughput, low-latency mobility communications for vehicles.

## Wireless solutions for industrial applications



### Transportation

The demand of data throughput for moving vehicles is constantly increasing. New applications include Communications-Based Train Control (CBTC), sensors, video data offload, onboard Wi-Fi, and real-time security video monitoring. The Cisco solution for vehicle mobility is the first trackside train-to-ground system to be deployed successfully anywhere in the world. This offering runs seamlessly on high-speed and commuter trains, buses, ferries, and automobiles, making it the ideal choice for maximizing passenger satisfaction, safety and control applications, and vehicle-to-vehicle connections.



### Ports, terminal operations, and intermodal facilities

Ports and intermodal facilities represent a crucial transit point for valuable goods and are required to be efficient, safe, and secure. Cisco Ultra-Reliable Wireless Backhaul technology supports data communication where cabled networks can't be used, enabling key applications such as automation and video control on Ship-to-Shore (STS) cranes, Rubber-Tired Gantry (RTG) cranes, Automated Guided Vehicles (AGVs), and terminal tractors. With numerous successful deployments of crane automation, Wi-Fi backhaul, and video surveillance, Cisco Ultra-Reliable Wireless Backhaul is the ideal solution for rapid, scalable, and cost-effective setup.



### Smart cities

Imagine a city where information can flow in real time, driving informed decision making about health, safety, and the environment. In a “smart city” real-time traffic sensing and intelligent routing, local pollution monitoring, and video surveillance are fully integrated. Cisco Ultra-Reliable Wireless Backhaul high-performance mesh infrastructure enables these applications and many more. Safety is enhanced, emergency response is better, traffic lights are under control, the city runs more efficiently, and Wi-Fi can be enabled for historically underserved areas.



## Mining

Mine automation boosts productivity, helps ensure consistent operations, and promotes worker safety. Data communication aimed at minimizing machine downtime and dangerous operation is the key to keeping the mine running smoothly. Cisco Ultra-Reliable Wireless Backhaul technology enables vehicle-to-ground communication for vehicle automation and realtime video monitoring with low latency and seamless handoff for even the most critical applications.



## Oil and gas

The Multiprotocol Label Switching (MPLS)-based technology used by Cisco Ultra-Reliable Wireless Backhaul creates a flexible, adaptable wireless infrastructure enabling data connection for Supervisory Control and Data Acquisition (SCADA), condition monitoring, smart grids, video surveillance, and Voice over IP (VoIP) backhaul. Industrial devices, sensors, and security and control equipment can be connected in large, hard-to-wire sites, such as oil rigs, offshore platforms, refineries, and oilfields. All Cisco Ultra-Reliable Wireless Backhaul products are built to exacting, rugged standards required for rough outdoor use.



## Campus and education

Consistent broadband connectivity is a necessity for any high school, college, or university. The cost of extending wired infrastructure makes wireless the perfect solution to provide connectivity in hard-to-wire locations. Multi-topology capabilities and ease of deployment make Cisco Ultra-Reliable Wireless Backhaul the perfect solution for outdoor backhaul applications. Right now, we connect thousands of young scholars while helping campus security officers protect students and faculty members.



## Manufacturing and corporations

Cisco Ultra-Reliable Wireless Backhaul gives corporations and large industrial plants an easy and secure way to expand their networks. Part of the network backbone, these products enable high data throughput to reach the edge with quick and easy deployment. Proven technology enables your low-latency, mission-critical condition monitoring, security, and automation initiatives. Capitalizing on the strength of wireless mesh architecture, Cisco Ultra-Reliable Wireless Backhaul technology creates a wireless infrastructure for data, video, and audio streaming.



## Airplanes

Boring flights with a slow internet connection (or none at all) are a thing of the past. Patented Cisco Ultra-Reliable Wireless Backhaul wireless technology can connect airplanes to ground infrastructure, enabling a reliable onboard Wi-Fi internet connection on any aircraft. Applications include surfing the web, making VoIP phone calls, and even streaming an in-flight movie.



## Drones and robotics

Robotic, unmanned technology is revolutionizing many industries. The innovations are incorporating more data-demanding sensor and video platforms that require low-latency, reliable communications at all times. The MPLS-based wireless protocol and field-proven performance of Cisco Ultra-Reliable Wireless Backhaul are used to establish stable, reliable, and fast connections to robotic systems to stream video and controls over long distances in challenging environments.



## Government and military

Communication is at the core of successful security and tactical operations. Cisco Ultra-Reliable Wireless Backhaul networks are deployed for security and video surveillance by some of the most elite rapid-response and law enforcement agencies around the world. These wireless solutions have been used by professionals in hostage situations, war zones, and remote border areas to provide mission critical connectivity.

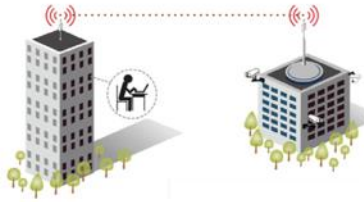


## Fixed infrastructure

A wireless infrastructure network consists of data connections between radios that are attached to fixed structures: poles, towers, buildings, etc. The layout and data communication can be implemented through PTP, PTMP, and mesh topologies, or any hybrid of these, to efficiently “connect the dots.” The network can be implemented in a structured way for permanent use, or in an ad hoc manner for temporary connectivity.

Today, Cisco Ultra-Reliable Wireless Backhaul supports a wide array of wireless backbone needs, including Wi-Fi backhaul, Closed-Circuit TV (CCTV), and emergency response.

## Point to point links



## Point to multipoint links



## Mesh links



## Moving vehicles

A mobile wireless infrastructure network consists of data connections between radios deployed on vehicles and fixed structures (V2I) or between vehicles alone (V2V). Such a network needs to support seamless handoff, low latency and data prioritization, and intelligent roaming decisions. Cisco Ultra-Reliable Wireless Backhaul technology is the best choice for high-performance, stable data streams between a fixed trackside infrastructure and a moving vehicle. This suite of solutions supports data-streaming applications for high-speed trains, metros, mining trucks, police cars, robots, and others.

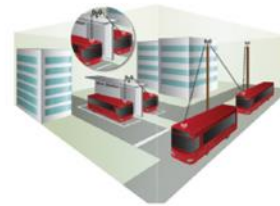
## Train links



## Terminal operations links



## Bus links



Max vehicle speed  
**220 mph**



Trackside covered:  
**Over 10,000 miles**



Seamless handoff deployment:  
**500 Mbps**



Connected through Cisco Ultra-Reliable Wireless Backhaul radios:  
**Over 200,000 cameras**



## About Cisco Ultra-Reliable Wireless Backhaul

Cisco Ultra-Reliable Wireless Backhaul is the worldwide leader in wireless systems for security, industrial, and mission-critical applications. Its range of solutions covers point-to-point, point-to-multipoint, and mesh networks with an unparalleled level of reliability, flexibility, and ease of use.

Cisco Ultra-Reliable Wireless Backhaul solutions are used by municipalities, industrial plants, schools, seaports and marinas, archaeological sites, resorts, theme parks, and racetracks.

Every Cisco Ultra-Reliable Wireless Backhaul product is embedded with an incredible amount of know-how and innovation, making it the wireless technology of choice for many systems integrators around the globe.

This technology, first introduced in the market in 2012, has continued to evolve as an innovative, high-speed mobility solution for any vehicle with a need for next-generation network connectivity. Nowadays it is a solid alternative to 4G and the new coming 5G cellular solutions. That's why it has been selected as the technology of choice by a large number of systems integrators looking for a reliable backbone solution for trains, light rail systems, mining trucks, terminal yard cranes, ferries, buses, police cars, and much more.

## Cisco Ultra-Reliable Wireless Backhaul products portfolio

	FM Ponte	FM1200 Volo	FM3200 Base	FM4200 Fiber	FM3500 Endo	FM4500 Mobi	FM4500 Fiber
<b>Communication</b>	MPLS-based	MPLS-based	MPLS-based	MPLS-based	MPLS-based	MPLS-based	MPLS-based
<b>Architecture</b>	PTP	PTP, PTMP	PTMP	PTP, PTMP, MOBILITY	PTP, PTMP, MOBILITY	PTP, PTMP, MOBILITY	PTP, PTMP, MOBILITY
<b>Frequency</b>	5.1 to 5.9 GHz 4.9 GHz	5.1 to 5.9 GHz 4.9 GHz	5.1 to 5.9 GHz 4.9 GHz	5.1 to 5.9 GHz 4.9 GHz	5.1 to 5.9 GHz 4.9 GHz	5.1 to 5.9 GHz 4.9 GHz	5.1 to 5.9 GHz 4.9 GHz
<b>Maximum throughput</b>	50 Mbps	150 Mbps	150 Mbps	150 Mbps	500 Mbps	500 Mbps	500 Mbps
<b>Interface</b>	2x 10/100	2x 10/100	1x 10/100 1x 10/100/1000	1x SFP XCO connector 100/1000 Mbps  1x 10/100/1000 M12 port	2x 10/100/1000	2x 10/100/1000 (or 1x SFP, optional)	1x SFP XCO connector 100/1000  1x 10/100/1000 M12 port
<b>Antenna</b>	2x2 MIMO	2x2 MIMO	Sector 2x2 MIMO	External QMA	External RP-SMA	External QMA	External QMA
<b>Maximum output power</b>	27 dBm	27 dBm	27 dBm	27 dBm	30 dBm	30 dBm	30 dBm
<b>Antenna gain</b>	17 dBi	17 dBi	18 dBi	-	-	-	-
<b>Antenna beamwidth</b>	33°H, 17°V	33°H, 17°V	120°H, 10°V	-	-	-	-
<b>Protection</b>	IP66	IP66	IP67	IP66	IP66	IP66	IP66
<b>Power supply</b>	PoE 12-24 VDC	PoE 12-24 VDC	PoE 48 VDC	PoE 48 VDC	PoE 48 VDC	PoE 48 VDC	48 VDC
<b>Security</b>	VPN, AES, 3DES, RSA, HTTPS, SSL	VPN, AES, 3DES, RSA, HTTPS, SSL	VPN, AES, 3DES, RSA, HTTPS, SSL	VPN, AES, 3DES, RSA, HTTPS, SSL	VPN, AES, 3DES, RSA, HTTPS, SSL	VPN, AES, 3DES, RSA, HTTPS, SSL	VPN, AES, 3DES, RSA, HTTPS, SSL





Contact an Account Manager today for more information.  
1.800.800.0014 ■ [www.connection.com/manufacturing](http://www.connection.com/manufacturing)

C1766072-0522

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)