



*MOTOWI4 Transportation Solutions*  
Indoor and Outdoor Connectivity



**MOTOWI<sup>4</sup>**

# To Move People, Product and Cargo Better, You've Got To Move Information Better

In transportation, only Motorola knows wireless inside and out. With the MOTOwi4 portfolio of end-to-end wireless broadband solutions, Motorola helps travel and transportation businesses maximize information visibility and access, improve operational efficiency and customer satisfaction, comply with stringent regulations, control costs, increase productivity and tighten security.



Transportation is one of the world's most competitive industries. Whether you're an airline, port, railroad, pipeline operator or other travel or transportation business, you're searching for ways to bypass your competition by streamlining operations, increasing worker and equipment productivity, improving internal and external communications and lowering operating costs while adding new revenue opportunities. That's where the exceptional information movement and management capabilities of wireless broadband—and MOTOwi4™ solutions—excel... adding value and positively impacting the bottom line.

## MOTOwi4 SOLUTIONS

The MOTOwi4 portfolio of complementary high-speed wireless solutions enables virtually every transportation environment to capture, connect, communicate and control IP-based voice, video and data in real time. The result is streamlined operations and data visibility from virtually everywhere, decreased inefficiencies, improved personal, premises and data security and strengthened supplier and customer relationships. Not to mention a leveragable competitive edge. MOTOwi4 provides non-stop high-speed connectivity that makes moving people and cargo faster, easier and safer.

MOTOwi4 provides a robust, scalable, interference-tolerant industrial wireless broadband infrastructure proven to deliver highly reliable 24/7 availability. MOTOwi4 networks extend the mobile edge to every part of the transportation network, delivering:

- **Enterprise-Wide Coverage and Connectivity.** MOTOwi4 solutions connect workers and functional areas throughout the organization—from indoor office and warehouse space to outdoor loading docks to remote facilities to ships on the ocean, airplanes at 30,000 feet, Remote Control Locomotives and pipeline connections in the middle of nowhere. The result? Stronger

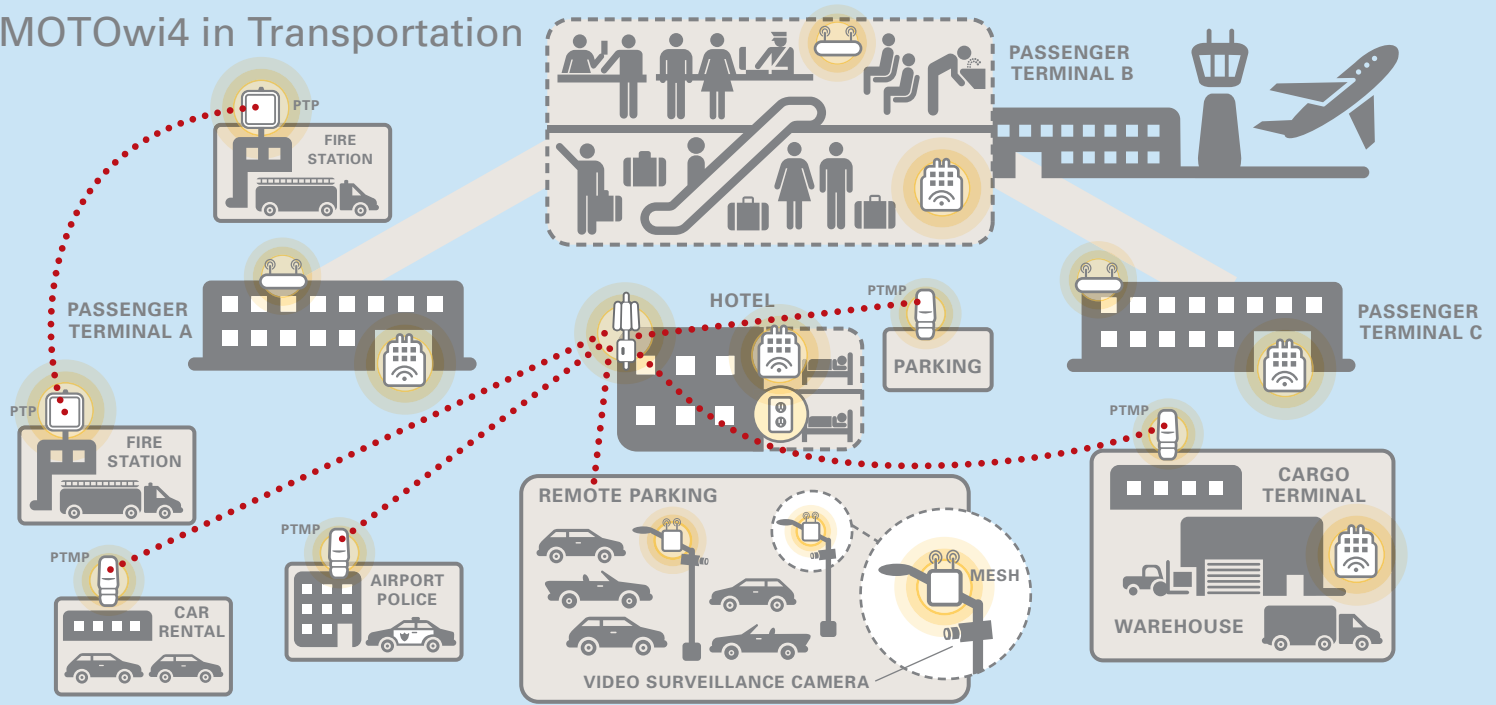
competitive advantage gained through better knowledge and increased communications between intermodal transportation partners.

- **Converged IP Networks.** MOTOwi4 solutions enable transportation enterprises to offer access to voice, video and data on a single converged IP network. The MOTOwi4 network architecture integrates legacy systems, provides comprehensive element management solutions and offers one of the industry's most flexible deployment options including fixed, portable, nomadic and mobile.
- **Improved Safety.** In today's increasingly security-conscious business environment, digital video surveillance solutions help protect the safety of passengers, cargo containers, personnel and capital equipment. MOTOwi4 solutions support any combination of mobile and fixed surveillance cameras and access controls, helping you protect critical infrastructure by deploying emergency communication and notification systems.
- **Enhanced Network Security.** Employing a wide range of authentication protocols as well as DES and AES over-the-air encryption standards, MOTOwi4 multi-layered security solutions help transportation businesses maintain the high levels of data confidentiality and integrity today's business and regulatory environments demand.
- **Business Continuity Management.** MOTOwi4 networks can be used as backup architectures to help your operation avoid costly downtime. In addition, they can be quickly deployed when disaster disrupts wired communications. Continuous availability of data also enables you to comply with regulatory requirements for asset and shipment traceability and tracking, and to meet suppliers and customer requirements for real-time, 24/7 visibility of transport and travel information.

## UNION PACIFIC STREAMLINES COMMUNICATIONS IN ITS OWN BACK YARDS

Union Pacific Railroad needed to make classification yard—or as we used to say, switchyard—operations safer and more efficient. UP, one of the railroad industry's leaders in using advanced technology, decided to streamline crucial communications using a wi4 Fixed point-to-point backhaul system to provide real-time transmission of critical yard data to a central monitoring center. Data is captured via Ethernet LANs installed in new Remote Control Locomotives, and by video cameras installed at crucial rail crossings in the yard. The results have been outstanding... including a 13 percent lower rate of switch yard accidents and more than a 57 percent lower rate of employee injuries.

## MOTOwi4 in Transportation



## Transportation's True End-to-End Wireless Broadband Ecosystem

Motorola provides a comprehensive high-speed ecosystem that delivers the secure, pervasive coverage and mobility that enable information to flow seamlessly inside and out. Whether inside a terminal, office or warehouse, or outside in the yard or dock and throughout the supply chain, the MOTOwi4™ portfolio empowers you to boost productivity and lower costs while leveraging advanced technologies. These include intelligent transportation systems (ITS), indoor and outdoor video surveillance, automated building management HVAC controls and Supervisory Control and Data Acquisition (SCADA) systems for remote capture and control of crucial data.

- **wi4 Indoor solutions:**

**Enterprise WLAN** is a complete portfolio of wireless switches, access points and bridges, combined with comprehensive network management and intrusion protection security solutions. Enterprise-class WLAN infrastructure is optimized to make mobile workers more connected and more productive.

**Broadband over Powerline (BPL)** solutions offer access as close as any wall outlet, combining wireless broadband technologies with the ubiquitous access of the power grid to deliver high-speed data over existing powerline through a building's electrical system.

- **wi4 Fixed solutions:**

**Point-to-Point** solutions provide cost-effective connectivity between remote sites, transmitting data with maximum reliability even in Non-Line-Of-Sight environments and other difficult conditions such as areas with high levels of interference, rough terrain or even bodies of water.

**Point-to-Multipoint** solutions—in licensed or unlicensed frequencies—create scalable and highly cost-effective connectivity between multiple facilities and previously unreachable locations, enabling ubiquitous information access and the creation of highly efficient paperless work flow systems.

- **wi4 Mesh solutions** provide scalable wireless broadband solutions with the capability of enabling any combination of fixed, portable, nomadic and mobile IP coverage. wi4 Mesh technology powers a self-forming, self-healing wireless broadband network that can be quickly and easily deployed in a wide range of transportation environments. In addition, built-in position-location features allow the system to go where GPS cannot.
- **wi4 WiMAX solutions** utilize a high performance, standards-based broadband access portfolio that enables transportation operations to expand coverage and capabilities, including extended IP access and utilization of new business applications.

### A MAJOR AIRLINE DISCOVERS THAT SEEING IS PROTECTING

The airline's employees at Newark International Airport were expressing concern about their personal safety in four outlying parking lots which were used at all hours of the day and night. To help alleviate their concerns, the airline and its service provider deployed a unique surveillance system based on wi4 Fixed point-to-point technology. The system interfaced easily with 60 full-motion video cameras, capturing and relaying real-time video and sound to the security control and command center. Results have been exceptional, increasing actual security levels while helping employees feel safer. Not only that, but overall recurring surveillance costs decreased substantially.



## MOTOwi4 Benefits Help Transportation Enterprises Optimize Operations Performance and Productivity



**Freedom from Wires.** MOTOwi4™ wireless broadband solutions let you deploy equipment to complement and complete your existing networks wherever it is most convenient, even in areas where wiring is difficult or dangerous.

**Monitoring.** Our wi4 indoor and remote field monitoring solutions deliver real-time problem alerts and empower technicians to monitor machine performance and perform remote diagnostics.

**Leased Line Replacement.** Many manufacturers replace expensive T1 leased lines and leased PBX systems with more cost-efficient wireless IP connectivity.

**Digital Video Surveillance.** Our advanced video surveillance capabilities help transportation businesses minimize loss, guard against intrusion and enhance passenger and personnel safety.

**Real-Time Location Systems.** Track personnel, baggage, cargo, equipment and other assets over the network in real time, providing for improved efficiency and increased security.

**Shipment and Storage Management.** High-speed wireless LANs connected to automated, handheld devices in the hold, on the dock or in the warehouse or yard enable cost-saving solutions such as real-time tracking and location.

### World Leadership in Design and Deployment

As a leader in integrating disparate wireless and RF technologies, Motorola offers unique expertise in designing and deploying wireless broadband networks in virtually every type of travel and transportation environment. We offer our customers comprehensive network management tools and support services that help them meet and master the formidable challenges of today's global transportation marketplace.



**MOTOROLA**

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