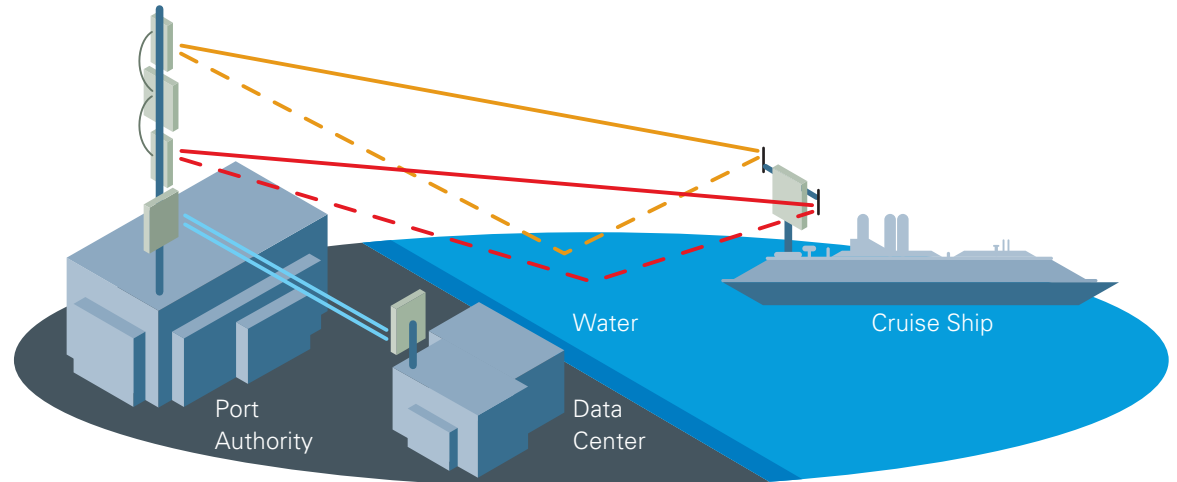




Broadband Wireless to a Floating Vessel Keeps Communications Flowing

Typical Implementation



Situation: Connectivity from Land to Moving Vessel

Scientific and military organizations spend a great deal of time and money on vast and varied oceanic research. Cruise ships leave port for exotic locations daily. Commercial fishing vessels and freighters travel the waters every day. From research to commerce, all these activities involve a vessel that moves on – or under – water, requiring reliable and high-bandwidth communications to and from a land base for sharing streaming video, images, photographs, data and even voice.

Challenge: Ensuring Reliable, High-Quality Transmissions

Bodies of water are always in motion and frequently choppy, creating a high degree of multipath fading as radio signals reflect off the water. The air above can be just as problematic, causing ducting as the signals move through air masses of different densities. Compounding the challenge, the vessel is in motion, and the land base can be many miles from the vessel. Therefore, the demands on a wireless communications system are stringent: It must efficiently handle multipath fading and ducting, travel long distances between hops and offer sufficient bandwidth to deliver heavy-duty applications.

Solution: Communicating to the Moving Vessel with Broadband Wireless

In a single-carrier system, the signal varies due to reflection and ducting. However, the reflection is used to advantage in Motorola's equipment by deploying vertically separated antennas at one or both ends of a link, creating two radio paths that don't experience reflection and ducting at the same time. By optimally combining the separate transmissions, Motorola eliminates signal cancellation and maximizes the signal received in each direction.

Motorola's 5.4 and 5.8 GHz wi4 Fixed Point-To-Point Wireless Ethernet Bridges – PTP 400 and PTP 600 Series – have successfully established connections to moving ships at distances up to 20 miles (32 km). Such challenging deployments are successful due to the high system gain of Motorola's powerful radio transmitters and super-sensitive receivers, adaptive modulation, and built-in spatial diversity that reduces the effects of ducting and water reflection. In addition, the rotation and movement of the ships relative to the land normally dictates the use of omni-directional or sector antennas, depending on the specific application.

Unique Technology, Unparalleled Performance

With solutions that offer cost-effective, digital communications at carrier-class reliability – up to 99.999% – and provide throughput rates from 3 Mbps up to 300 Mbps, Motorola is the only manufacturer to combine these innovative technologies that are proven to minimize interference and maximize throughput:

- Inherent Spatial Diversity
- *i*-OFDM (*Intelligent* Orthogonal Frequency Division Multiplexing)
- Multiple-Input Multiple Output (MIMO)
- Advanced Spectrum Management with *Intelligent* Dynamic Frequency Selection
- Adaptive Modulation

The Bottom Line

Military and scientific organizations, shipping and fishing enterprises, entertainment and cruise ship companies can all see a fast return on investment – typically less than one year – due to:

- Robust and reliable communications to and from a floating vessel where previously it was not possible
- High bandwidth for heavy-duty applications
- All-IP voice, video and data communications
- Seamless integration with existing LAN and WAN
- Cost-effective, easily deployed system

MOTOwi4™

The Motorola wi4 Fixed Point-to-Point Wireless Ethernet Bridges – PTP 400 and PTP 600 Series – are part of Motorola's MOTOwi4 portfolio of innovative wireless broadband solutions that create, complement and complete IP networks. Delivering IP coverage to virtually all spaces, the MOTOwi4 portfolio includes Fixed Broadband, WiMAX, Mesh and Broadband-over-Powerline solutions for private and public networks.

About Motorola

Motorola is known around the world for innovation and leadership in wireless and broadband communications. Inspired by our vision of Seamless Mobility, the people of Motorola are committed to helping you get and stay connected simply and seamlessly to the people, information, and entertainment that you want and need. We do this by designing and delivering “must have” products, “must do” experiences and powerful networks – along with a full complement of support services. A Fortune 100 company with global presence and impact, Motorola had sales of US \$42.9 billion in 2006. For more information about our point-to-point products and services, visit our website at www.motorola.com/ptp.

Note: The Federal Communications Commission (FCC) and Industry Canada (IC) have authorized the Motorola 5.4 GHz PTP 400 Series Point-To-Point Wireless Ethernet Bridges, Integrated models, for sale in the U.S. and in Canada. IC has also authorized the 5.4 GHz Motorola PTP 600 Series, Integrated models, for sale in Canada. Otherwise, the 5.4 GHz versions of these devices have not been authorized as required by the rules of the FCC and the IC, and those devices are not, and may not be, offered for sale or lease, or sold or leased in the United States or Canada, until authorization is obtained.



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