



## Radio over IP: Game-changing Technology for Achieving Interoperable Communications

### Advanced Software Provides the Best Approach for Extending and Integrating Current Infrastructure to Create Open, Shared Communications Systems

#### What is RoIP?

Radio over IP is the critical ability to connect radio systems within a powerful IP network, allowing radios to interoperate with previously incompatible devices.

#### RoIP benefits:

- Ensures interoperability across devices
- Does not require the purchase of new hardware
- Deploys quickly
- Upgrades easily
- Supports geographically dispersed users

#### Are additional hardware purchases required?

No. With RoIP, you don't have to buy new radio equipment to achieve interoperability.

#### Is RoIP prevalent in the public safety industry?

Interoperability plans for Public Safety Interoperability Communications (PSIC) and SAFECOM grant funding include IP-based software solutions like RoIP.

#### Does one RoIP solution work with another?

With Twisted Pair involvement, SAFECOM, a US Department of Homeland Security working group, is developing the Bridging Systems Interface (BSI) that will ensure compatibility among communications equipment manufacturers.

#### How can I take RoIP to the next level?

WAVE allows businesses to also integrate RoIP with Unified Communications, including popular platforms from Microsoft, IBM, Avaya, Cisco, Nortel and others.

Two-way radios are the communications lifeblood for today's large, distributed and fast-moving organizations. Portable, rugged and easy to operate, these radios provide the instant, on-the-spot connections that keep mobile field workers in touch and on target. In fact the substantial business benefits from this mobile communication has long overshadowed radio's shortcomings, which include high operating costs, long repair delays and limited, or no, interoperability with other communications systems.

Traditional radio environments create islands or silos of connectivity, tying departments to leased lines and legacy hardware and making it impossible for every member of the organization to freely communicate.

*The lives of civilians are put at risk when the agencies that protect them are unable to share information in real-time during an emergency. This fast connection with other entities can be achieved today regardless of an agency's existing equipment, size or budget restrictions.*

Emergency organizations have cited the inability to communicate across various agencies as a hazard long before 9/11. To close this gap and maximize response efforts to unpredictable events, like earthquakes, hurricanes and wildfires, many public safety organizations have tried unsuccessfully to unify their radio communications with other response parties. These approaches have included providing temporary radios, applying patches that deliver a small amount of interoperability or buying an entirely new radio setup. These partial solutions are insufficient since they don't incorporate every device, user and network in the communications ecosystem.

Radio over Internet Protocol (RoIP) can alleviate issues related to system incompatibilities. It can even lower the overall cost of new radio deployments while enhancing overall connectivity. This improved serviceability has made RoIP a core component of communication strategies worldwide, allowing radios to finally serve as a building block to achieving unified, interoperable communications.



*RoIP gives first responders the ability to interoperate with any communications system*

### WAVE is VoIP Software that Connects Any IP Accessible Device:

- Two-way Radios
- PCs & PDAs
- Mobile Phones
- Telephones
- Paging Systems
- Intercoms

### WAVE is:

- 100% Software
- Built to Open Standards
- Independent of Proprietary Hardware
- Customizable

### WAVE Benefits:

- Increases the Value of Investments in Radio, IP and Telephony
- Increases Productivity Through Interoperability & Collaboration
- Increases Flexibility and Modularity Through Open Standards
- Extends Unified Communications to Include Radios
- Enhances Communications Reliability
- Lowers Communications TCO

### Leveraging Existing Equipment and Improving Functionality

RoIP breaks down incompatibility barriers, allowing companies to complement existing hardware with IP-based software to dramatically lower the cost of new radio networks—all while better leveraging existing investments. Unlike VoIP (Voice over Internet Protocol), a technology that simply connects telephones with other telephones, RoIP makes it possible to link voice communications between radios and a host of other devices—including telephones, computers, cell phones and PDAs—using the universal language of IP.

In a RoIP deployment, new IP gateways are connected to the base stations of your existing two-way radio system—leaving the rest of your radio deployment untouched. Once a voice communication reaches the base station/IP gateway, software converts the transmission into IP packets and routes the signal across the network to other targeted gateways in the IT infrastructure, where it is reconverted into the particular language of the device receiving the communication. Deskbound office workers are then empowered to talk directly with team members on radios in the field, using their own familiar devices.

With RoIP, users have a unique series of controls that help them command the communication session. Radio-specific options include push to talk (PTT), channel changer, scanner and others. Dispatchers can form talk groups with a quick drag and drop of parties and channels.

### Hardware Freedom

Perhaps RoIP's greatest benefit is that it completely decouples hardware from the connectivity equation. First, it ensures greater communications interoperability without the need to purchase, deploy and manage new hardware. Second, it bridges previously incompatible systems and standards. This not only allows organizations to adopt new radio equipment while still leveraging their existing two-way radio systems (no "rip and replace" necessary), it also allows organizations to link with any outside inter-agency systems. So utility workers can readily talk with first responders in a disaster, for instance, even across incompatible equipment and signals.

### Find Out More

If you would like to learn more about how WAVE software can optimize RoIP within unified communications platforms, visit us at [www.twistpair.com](http://www.twistpair.com).

### About Twisted Pair Solutions

*Twisted Pair Solution's award-winning WAVE software technology enables partners and customers to build and operate secure, highly scalable communications solutions in the world's most demanding environments. Recognizing that the best approach to solving the complexities of communications interoperability is to use standards-based software to unify diverse communications technologies, WAVE is trusted when communications is absolutely indispensable. Twisted Pair Solutions is headquartered in Seattle, Washington, USA with offices in the United Kingdom and Australia.*