



## Air Evac Lifeteam Uses WAVE® to Extend Emergency Communications

### Critical Communications Software Helps Deliver Faster and More Reliable Critical Care in Rural America

Air Evac Lifeteam is the largest independently owned and member-supported air medical service in the U.S. The physical limitations of their radio network were becoming a liability, with multiple stations, consoles and dispatchers in play, and no inter-service interoperability or system survivability. Big issues were at risk: critical patient care and the organization’s financial health. WAVE software helped Air Evac Lifeteam affordably achieve near-unlimited scalability, greater efficiency, extensive communications interoperability and system redundancy.

#### THE CHALLENGE

Air Evac Lifeteam has flown more than 140,000 people who were in critical need of care. They primarily service rural areas, where death rates from life-threatening conditions average twice as high as those of urban locations, usually due to the extensive delay in the delivery of proper care.

To provide this vital service, the organization maintains a fleet of more than 100 helicopters stationed over 75 mutually supporting air-medical bases. This massive operation is coordinated by 25 dispatchers from a single emergency dispatch center, with calls coming in from over 600 hospitals, 700 EMS agencies and more than 635,000 members across 12 Midwestern states.

Air Evac Lifeteam’s existing radio network was no longer up to the task of managing these communications demands. Based on bulky and expensive proprietary hardware consoles, the system was inefficient, confusing and operating beyond capacity. There was no survivability to speak of, and no functional interoperability.

Physically accommodating future growth was also out of the question. Even if it were, expanding operations with their current configuration would have actually led to diseconomies of scale, with per-channel and per-seat costs rising with each addition, draining any return on investment.

With each console capable of handling a mere 48 channels, dispatchers had to operate two separate consoles, and two separate microphones, to account for the 76 channels corresponding to the individual bases. With every second vital to patient survival, dispatchers had to remember which console a particular channel was on, and then which microphone was connected to that console.

#### WAVE SOLUTIONS FEATURES

**Extensive Interoperability**  
Creates a tightly integrated communications environment, supporting interoperability between flight crews, call initiators and emergency services from almost any communications device.

**System-of-Systems Architecture**  
Uses standards-based software to avoid the unnecessary complexity, limitations and expense of proprietary hardware solutions. Implements a more reliable redundant dispatch center.

**Cost-Effective Scalability**  
Provides support for 250+ channels with the ability to scale to a virtually unlimited number of users, all from a single console.

*“After evaluating all possible solutions in the marketplace, it was wholly apparent that WAVE was not only the best choice of all the Radio-over-IP technology we use for our clients, but the only solution given the project’s scale.”*

— David Billstrom  
CEO and Chairman,  
National Interop



The limited number of channels also meant that telephone lines could not easily be patched into radio channels. Dispatchers, therefore, were forced to pass critical information back and forth between flight crews and the requesting parties or receiving facilities.

Complicating matters further, the expense and size of the hardware meant that Air Evac Lifeteam could not easily afford additional equipment, nor could they physically fit it in the limited desktop space already populated by three monitors. As a result, three to four individual dispatchers shared each set of consoles, rather than operating their own.

Finally, like most of the 911 dispatch centers in the U.S., Air Evac Lifeteam's single dispatch center had no redundant facility to assume control instantly in the event of a major natural disaster or system failure. The entire communications system was based on a point-to-point architecture, with each radio tower connected to a single corresponding circuit at the dispatch center. This infrastructure made it unfeasible to install a backup dispatch center. It also meant substantial maintenance costs and potentially fatal repair delays in the event of a system disruption.

## THE SOLUTION

After researching software-based solutions for radio integration with an IP network, Air Evac Lifeteam's contacted National Interop, an expert radio systems integrator with personnel experienced in the EMS community and air-medical transport—and a Certified WAVE Integrator.

"Capitalizing on our familiarity with emergency response, we conducted a thorough assessment of the objectives, technical constraints and budget of Air Evac Lifeteam," said David Billstrom, CEO and Chairman of National Interop. Their evaluation: WAVE presented a unified communications solution that no other technology could match. In an approach proven at numerous installations worldwide, WAVE uses standards-based software to allow disparate devices to communicate seamlessly without requiring any expensive proprietary hardware. In this manner, WAVE builds a system-of-systems to create communications interoperability with unparalleled scalability, flexibility and affordability.

And WAVE's economical capitalization of software means that every dispatcher has their own PC-based console from which they can communicate on any radio channel with only two clicks of a mouse.

Taking advantage of the WAVE Software Development Kit (SDK), National Interop was able to customize several features of the user interface to facilitate optimal dispatcher performance. Additionally, these WAVE-enabled consoles offered the power to easily expand to more than 250 separate communications channels.

According to Communications Systems Manager Don Looper, the exceptional capabilities of WAVE software revitalized their communications capabilities and enabled Air Evac Lifeteam to continue putting the patient first. "Our 23 years of operations have shown that a patient's chances of survival from a life-threatening injury are greatest if they receive definitive care without delay. Our upgraded dispatch capabilities will ensure the fastest responses possible when patients' lives hang in the balance, plus we'll have a state-of-the-art backup center that will be ready at a moment's notice should it be required."

## THE RESULTS

### Instant Dispatcher Access

Flight crews use their radios to communicate directly with the initiators of emergency calls and receiving hospitals (on radios, cell phones and analog phones), ensuring the direct transfer of information to improve patient outcomes.

### Improved Dispatch Operations

Air Evac Lifeteam established a 1:1 ratio of dispatchers to consoles. Every dispatcher can instantly access any helicopter and their radio from a single PC console, improving operations while minimizing costs.

### Network Survivability

Implementation of a new network architecture allows for a redundant dispatch center that ensures far-reaching continuity of operations.

### Let's Talk

We work with hundreds of public-sector organizations around the world. How can we help you?

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## ABOUT WAVE

WAVE software empowers your mobile workforce with critical communication applications for secure, real-time collaboration anywhere on any device built upon a battle-tested communications interoperability platform that delivers voice, video, location, presence and other forms of data deployed as an enterprise product or cloud based service throughout commercial, public sector and defense organizations worldwide. Proven in thousands of the most complex deployments around the world, WAVE helps you integrate and control a truly unified communications system so that office-based and mobile workers can simply talk, make decisions and act. WAVE has a Certificate of Networkiness from the U.S. Army and is on the NATO Approved Fielded Products List.

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