

Securing America's Border

How the U.S. Border Patrol Employs WAVE® Unified Communications Software to Deny Access to Illegal Immigrants, Drug Traffickers and Terrorists



In Brief

NORTEL

Government Solutions

The U.S. Border Patrol agents of Tucson Sector are responsible for intercepting and apprehending criminals and terrorists along the world's busiest stretch of international border. To more effectively coordinate security efforts and threat response with other agencies at every level of the government, the Border Patrol chose to implement a WAVE-powered unified communications solution. With a significant and expensive radio upgrade already underway, the Border Patrol achieved the capacity for broad-reaching interoperability by leveraging the capabilities of WAVE standards-based software to create a "system-of-systems" by seamlessly integrating with all existing and future hardware. In the process, they have established a system that possesses virtually unlimited scalability, offers guaranteed long-term relevance, and lays the template for critical communication across all other sectors of the border.

The Challenge

The U.S.-Mexico border is the most frequently crossed—both legally and illegally—international border in the world. Divided into eight sections for management by the U.S. Customs and Border Protection (CBP) agency, Tucson Sector is the busiest. Staffed by nearly 3,000 Border Patrol agents, Tucson Sector covers 262 miles of linear border and approximately 90,000 square miles. "It is definitely some of the harshest terrain in North America," says Ryan Scudder, a Border Patrol spokesman.

In the post-9/11 world, border control is a top political and security priority, adding a sharp focus on terrorist activities to previous concerns primarily about drug trafficking and illegal immigration. Effective communication is both a responsibility mandated by the Department of Homeland Security (DHS), and given the area being monitored, critically important to mission success.

Unfortunately, Border Patrol communications systems generally fell short of capabilities deemed vital. They lacked any inherent interoperability and portions of the existing hardware had become obsolete, making repairs difficult and expansion impossible.

At times, the Border Patrol needs to coordinate with CBP Air and Marine, Arizona Highway Patrol, local law enforcement, the Tohono O'odham Nation Police Department, and others. Using a VHF system, the Border Patrol had no means to quickly communicate with these other agencies using UHF and 800 MHz systems. In daily operations, Border Patrol agents in need of local support had to communicate indirectly through dispatch or by mobile phone, an unreliable method due to a significant lack of coverage along the border. To achieve any semblance of interoperability in the event of a multi-agency on-site response, the Border Patrol was forced to transport one or more 8-channel ACU 1000 units to the scene. Each agency

then had to surrender a radio to be connected to the console—an action most were certainly dissatisfied with taking.

In addition, although reliable, the Border Patrol's CENTRACOM Gold Series Elite hardware was no longer being supported by the manufacturer. Expanding the system, therefore, was completely out of the question and even upkeep had become challenging. In fact, the Border Patrol had already resorted to purchasing some needed components off of eBay.

The Solution

Alongside a process of upgrading field radios, Tucson Sector was pursuing a new IP telephony system. Working with Nortel Government Solutions on the latter, it became clear there was an operational requirement for greater interoperability both between phones and radios and with the varied systems of other agencies. Given the radio upgrade already under way, the most critical criteria was that the unified group communications solution easily integrate with existing plans and hardware.

In light of the restrictive circumstances and the crucial need for interagency communications in securing America's borders, Nortel Government Solutions, a Certified WAVE Integrator, presented a WAVE-based system as the only solution that could deliver. Solely reliant on standards-based software, WAVE creates seamless communications between disparate devices without employing any expensive proprietary hardware.

In essence, WAVE integrates easily with all existing hardware to build a system-of-systems that establishes interoperability with unparalleled flexibility, scalability and cost-efficiency. With WAVE's brilliant leveraging of software, the Border Patrol found a unified group communications solution unmatched by any competing technology.

Customer Pain Points

- **Lack of Interoperability.** Agents were unable to readily coordinate with local, state, tribal and other federal agencies to intercept terrorists, drug traffickers and illegal immigrants.
- **Obsolete System Hardware.** With hardware no longer supported by the manufacturer, replacement parts were being procured on eBay and expansion of the current system was an impossibility.
- **Remote, Rugged Geography.** Harsh terrain and difficult to reach locations limited mobile phone network coverage, delayed on-site presence of personnel, and hampered repair and maintenance efforts.

Solution Features

- **System-of-Systems Architecture.** Uses standards-based software to work with existing hardware infrastructure and avoid the unnecessary complexity, limitations and expense of proprietary hardware solutions.
- **Extensive Interoperability.** Creates a tightly integrated communications environment, eliminating borders, boundaries and limitations by uniting all communication devices regardless of technology, manufacturer, frequency, or operator.
- **Guaranteed Relevance.** With standards-based software as core components, upgrades are simple and it is ensured that the system will never be obsolete.
- **Cost-Effectiveness.** Uses only standards-based software to deliver highly affordable interoperability by incorporating existing communications devices without requiring any expensive new hardware.

Since DHS came into being, most grants intended to advance communications interoperability have been narrowly focused on purchasing costly digital radio equipment. The strategy, however, has proven disappointing in its ability to achieve acceptable levels of broad interoperability.

In the case of Tucson Sector, WAVE Management and Media Servers were simply placed on Windows-based machines between the Border Patrol's 11 CENTRACOM dispatch consoles and the Central Electronics Bank (CEB), responsible for sending and receiving signals along the network's microwave backbone. In addition to working seamlessly with this existing infrastructure, the selection of WAVE meant that Tucson Sector did not have to alter its ongoing process of replacing the approximately 2,500 handheld radios, 2,200 vehicle radios and 40 base stations in the field – a step that would have clearly been cost prohibitive.

While maintaining the majority of its existing core hardware, Tucson Sector has taken a giant step toward becoming an intelligence and law enforcement hub for Arizona. The

WAVE-based solution flawlessly patches in phone lines and includes direct channels to CBP Air and Marine pilots providing crucial air cover and monitoring, as well as to the Tohono O'odham Nation Police Department. Meanwhile, the groundwork has been established to create channels for the Arizona Highway Patrol, police for five or six different counties, and as many as 30 other local and state entities.

"Tucson Sector is a test bed for a larger deployment of this WAVE-based solution across the entire U.S.-Mexico border," says John Hanes, Area Service Manager for Arizona with the Border Patrol. "Without relying on any hardware, we have the potential for achieving massive interoperability both easily and affordably. In the end, WAVE is simply a better solution at a cheaper price."

Find Out More

If you would like to learn more about WAVE software technology and the innovative communications solutions built around it, visit us at 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.

About Nortel Government Solutions

Nortel Government Solutions is a network-centric integrator converging IT services and communications to help government ensure the security, livelihood, and well being of its citizens. We deliver a comprehensive portfolio of technology and high-end services capable of meeting the demands of the most complex and important systems in the world. Headquartered in Fairfax, Virginia, Nortel Government Solutions engineers, deploys and manages mission-critical solutions for government, including homeland security, criminal justice and intelligence, defense and civilian agencies within the U.S. Federal Government and at state and local levels.

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