How the Air Force is dealing with the personal wireless comm

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By Col. Dave Kovach
AFCA commander

From the Top

Communication devices have revolutionized the way people interact. The inventions of the telephone, television, and the Internet have fundamentally changed our lives by providing information, increasingly on demand and "on the fly."

Advances in Personal Wireless Communication technology have added unprecedented mobility and portability, allowing users to access information wherever they are.

The military is increasing its reliance on PWC devices and services to leverage these characteristics, as well. **PWC technology is enabling our nation's military, resulting in a lighter more mobile force while promising vast new capabilities for the future.** AFCA, through its Lead Command Management role, supports PWC technology by ensuring the Air Force develops and acquires secure, integrated capabilities.

PWC encompasses a wide and rapidly-growing variety of portable communications capabilities. The Air Force and the Department of Defense use a variety of PWC devices including Land Mobile Radios, cell phones, pagers, mobile satellite services, and wireless e-mail systems.

LAND MOBILE RADIOS

Land Mobile Radios make up the earliest PWC family. These devices evolved from the much larger two-way radios that our military deployed in the 1930s. Field officers used these single channel radios for communicating with headquarters. **Development of solid-state devices, and smaller, more capable batteries made it possible to reduce the size of two-way radios down to the "brick" profile that commanders carried around as recently as 15-20 years ago.** Today, LMRs come in a variety of sizes and shapes and with a multitude of features to suit operational needs. Battlefield commanders, mobile fire, police, and other first response emergency teams use LMRs for voice communications.

The increased use of wireless devices coupled with finite frequency spectrum resources led the National Telecommunications and Information Administration to issue a narrowband-mandate for LMRs. This mandate requires the Air Force to replace all of its in-garrison (non-tactical) LMRs used in the United States and its Possessions. This phased transition must meet two separate dates targeted in the mandate—Jan. 1, 2005 and Jan. 1, 2008 deadlines. To successfully meet these deadlines, AFCA partnered with the MAJCOMs to develop the Air Force Narrowband Migration Plan.

In conjunction with this plan, we successfully programmed for centralized funding to satisfy most mission-critical system migration requirements. Individual commands are still responsible for directing the migration of LMR assets and funding their non-mission critical requirements.

GLOBAL VOICE & DATA CONNECTIONS

In addition to base or small-area coverage, the Air Force requires connectivity for deploying and en route forces to reach back to home station. To meet these requirements, commercial Mobile Satellite Services, such as Iridium and INMARSAT, provide global voice and data access connectivity to the public telephone system.

Through the use of military gateways and security enhancements, DoD subscribers are able to use these systems to support conventional military operations, special operations, and military operations other than war. Troops relied upon MSS extensively in Operation Enduring Freedom and Operation Iraqi Freedom for en route communications, senior leader support, search and rescue, initial base opening operations, and other critically important mission areas.

AFCA, as the Lead Command for commercial MSS, helps facilitate service requirements and guides future integration into the Air Force mission/capability portfolio. In this role, AFCA provides Air Force headquarters and major commands a single advocate for their requirements. We work with MSS vendors and monitor technological advances to

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identify systems to meet user-identified needs. AFCA provides this knowledge in the form of recommendations to MSS managers and users to assist in compatibility, interoperability, and operational testing, and evaluation of MSS products and services.

CELLULAR & WIRELESS DEVICES

While MSS products are growing in proliferation due in large part to global contingency operations over the past few years, PWC devices using commercial cell-based wireless infrastructure have become most common. **Cell phones, pagers, and wireless Internet devices have become essential to supporting time-critical communications, and in many applications, for accessing command and control and intelligence, surveillance and reconnaissance information.**

The proliferation and functionality of these devices have created an industry that produces innovations seemingly daily. Only about a decade old, cellular companies have expanded coverage nationally and have moved from voice-only to voice and data services; moreover, in the past few years the use and availability of Global Services-Mobile cellular technology has created global wireless telephone connectivity.

To meet demand for higher bandwidth capabilities such as e-mail and messaging, providers continue to rapidly upgrade their systems. Marrying increases in bandwidth and services, handheld devices will eventually, and perhaps soon, rival today's PCs in processing power and data storage.

ENSURING SECURITY

Experts are predicting future cell-based PWC to converge to a single device. Essentially, this device will be a handheld computer with integrated voice and data communications capabilities. While PWC technologies can enhance Air Force mission effectiveness, we must remain vigilant to the inherent security vulnerabilities these devices pose to the Global Information Grid. **As communicators, our responsibility is to ensure employment of PWC technologies is done in a manner that ensures maximum interoperability among subscribers, integration across capabilities and platforms, but most importantly, providing security compliance with DoD standards.** We must make users aware of both existing security technologies and policies that govern the use of these devices.

For instance, the Air Force, and specifically AFCA, is working daily with vendors to create security add-ons for existing products and ensure security is built into new products. NSA has approved Type 1 encryption available for some LMRs, commercial MSS, and cellular phones.

In addition, AFCA and other agencies are working to develop security policies and procedures that keep pace with emerging PWC technologies. However, the continuing challenge for each of us is the balance between security and operational needs.

The future possibilities of wireless communications have led to a proliferation of interconnected "smart devices." The rapid evolution of PWC devices will continue to provide the Air Force unprecedented opportunities to achieve our decision superiority and information dominance goals.

As communicators, we need to understand the concepts and applications of the wireless revolution. This understanding will provide our warfighters the best tools to accomplish their missions, while also making certain these technologies integrate into our Global Information Grid and security architectures. "Finders, Deciders, Shooters." That's our vision—let's make it happen now, but also happen right.

Editor's note: Pervasive computing is done with portable devices that have wired network, wireless network, and cellular connectivity to networks so that you are always connected no matter where you go. Information on demand is available if you are at your desk via wired media. The key to PWC is that the information follows you wherever you go.