Radio Over Wireless Broadband Project

Issue Background

Interoperability is the ability of emergency responders—police officers, firefighters, and emergency medical service personnel—to exchange data and voice communications across disciplines and jurisdictions in real time, as authorized. Emergency responders typically use wireless radio systems—known as land mobile radios (LMRs)—that are either hand-held or mounted in vehicles. Emergency responders also are increasingly using proprietary cell phone networks to communicate. Today, emergency responders nationwide are gaining access to other advanced communication capabilities through high-speed, or broadband, wireless connections.

Many agencies are using LMR systems *and* separate wireless broadband systems. The wireless broadband service is often supplied by a commercial cellular service provider. Because the LMR and broadband systems serve specific and different needs, they were not designed to communicate with each other. The lack of interoperability between these two systems may compromise emergency response operations when emergency responders using a broadband system are unable to communicate with emergency responders employing an LMR system.

ROW-B Project Overview

To address this capability gap, the Department of Homeland Security's Office for Interoperability and Compatibility (OIC) launched the Radio Over Wireless Broadband (ROW-B) research project. Through this research project, OIC is working with public safety agencies and an industry partner to research how to connect existing LMR systems with advanced wireless broadband technologies, such as Push-To-Talk over Cellular, while also leveraging Geographic Information System (GIS) technology. Push-To-Talk over Cellular technology allows for walkie talkie-type communication over a cellular phone network. This smart phone technology effectively allows a single user to reach multiple users through talk groups on the cellular network. By reducing the need to place several calls to coordinate a group, this technology saves critical response time.

GIS technology refers to a host of applications that identify locations (based on a map) of other vehicles, equipment, and other emergency responders. GIS databases display these locations on maps that include important information such as roads, buildings, and fire hydrants. This technology enables emergency responders to access the locations of critical resources—such as equipment and personnel—in real time and to form dynamic talk groups based on proximity (See Graphic 1).
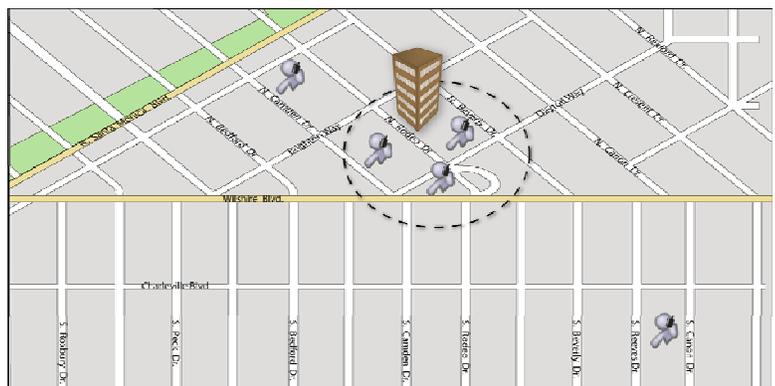
Graphic 1 – Dynamic Talk Groups Based on Proximity

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As industry develops new technologies, it is critical that emergency response agencies are able to integrate them into current and future systems and operations. To link communications systems, emergency responders rely on bridges or gateways (See Graphic 2).
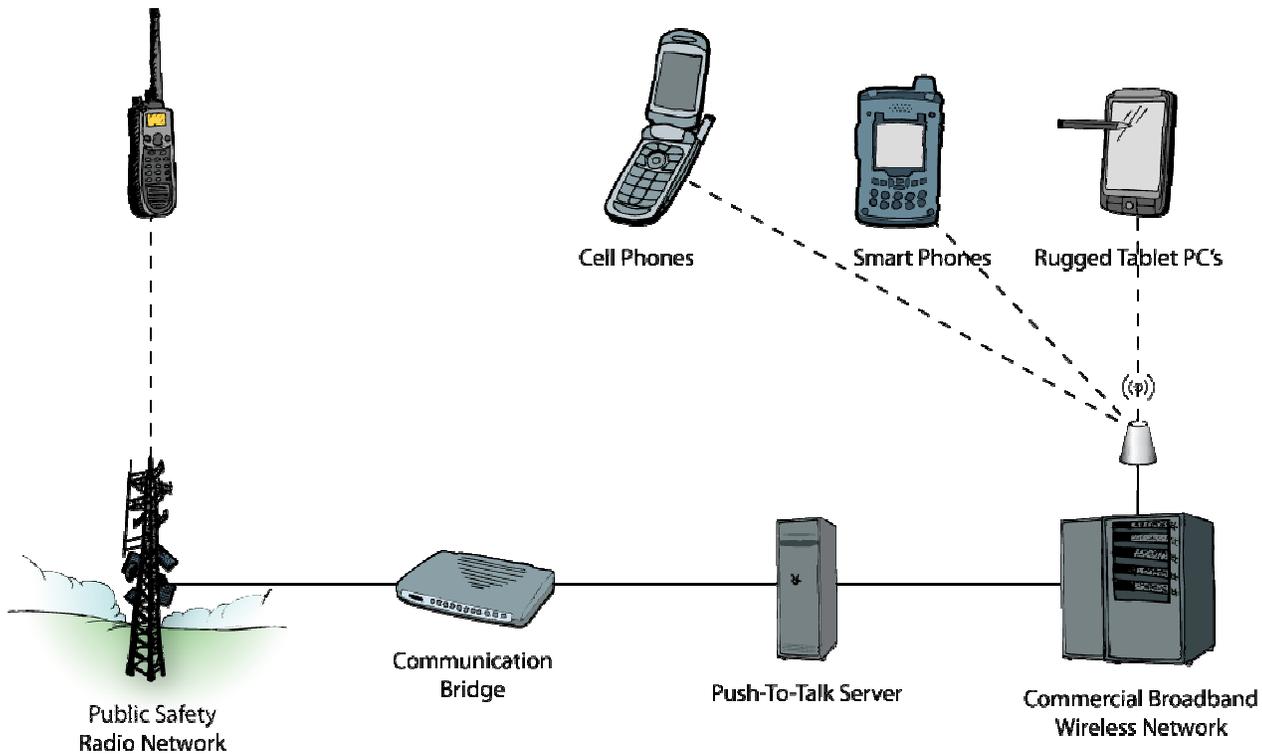
Graphic 2 – ROW-B Research Project Overview

The capability to communicate among Push-To-Talk over Cellular callers and LMR system users will significantly improve emergency response operations by allowing authorized, non-radio system users to communicate with response units.

Impact

As an early deployment of cutting-edge technologies, ROW-B will enable emergency responders and agencies working on interoperable communications to evaluate the benefits and limitations of providing interoperability between previously incompatible systems.

By documenting lessons learned and best practices, the ROW-B research project will assist localities nationwide in the integration of existing and emerging communications systems.

The impact of the ROW-B project reaches beyond technology. Presented with entirely new ways of communicating, emergency response agencies will have an opportunity to create new standard operating procedures as well as new governance structures for managing incident communications.