# Security Issues in Public Safety Communication Networks

## Introduction

Public safety communication networks are poised for a dramatic evolution from the traditional Land Mobile Radio system. First responders recognized the necessity for public safety communication networks to evolve beyond mission-critical voice services to encompass providing mission critical data services. In 2012, the Middle Class Tax Relief and Job Creation Act of 2012 required FirstNet, a government managed next generation public safety communication network initiative known as the First Responder Network Authority, to build, operate, and maintain the first high speed nationwide broadband network dedicated to public safety. However, the exponentially increasing amount of sensitive data being transmitted over networks being utilized for the public safety mission causes great concern over the protection and security of such data. This project proposes ways in which such data can be protected on the FirstNet network.

### Current State

Currently, first responders are relying on Land Mobile Radio networks to provide mission critical voice communications. These Land Mobile Radio networks generally meet first responder’s needs to have a guaranteed priority access to mission critical voice services. However, most first responder organizations require mobile data services and applications which are being provided exclusively by commercial carriers. Unfortunately, utilizing these services and applications requires sharing resources with the commercial network which creates significant and ongoing concerns regarding the ability to prioritize such demands appropriately.

### Near-Term FirstNet

When FirstNet launches, the objective of the network will be to provide mission critical, high speed data and video services that will supplement Land Mobile Radio networks which would provide mission critical voice services. First responder organizations will still reply on the Land Mobile Radio networks for mission critical voice services. Therefore, the initial transition will move services and applications which previously utilized the commercial network onto the FirstNet network.

### Long-Term FirstNet

Ultimately, FirstNet will offer mission critical voices services along with video and data. Voice services will be provided once Voice over Long Term Evolution functionalities meet or exceed mission critical needs.

## Purpose

The purpose of this project is to propose ways in which FirstNet can protect and secure mission critical data that traverses its network.

### Items of Interest

#### Radio Access Network

This consists of the radio base station infrastructure that will connect user devices to the network. These may include cell towers as well as hotspots embedded in vehicles.

#### Public Safety Devices

These are devices that user use to send and receive information over the network. These may include smart phones, tablets, laptops, and any other specialty device.

#### Applications

These are the