www.firstnet.gov

# First Responder Network Technology and Opportunity

National Geospatial Advisory Committee (NGAC) Meeting
June 14-15 Washington, DC

**For Official Use Only**

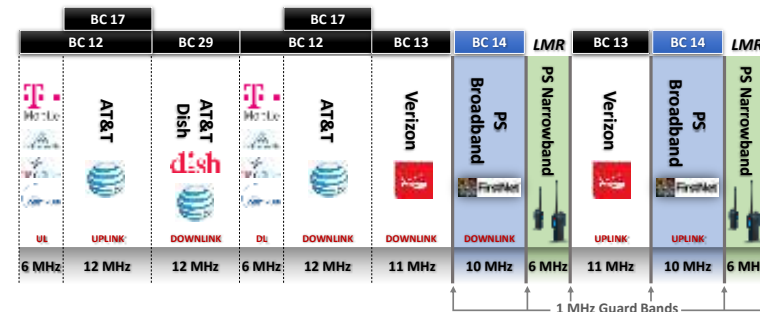# What is FirstNet?

➢ **Mission**
- Based on 9/11 Commission Report recommendations, FirstNet will ensure the building, deployment, and operation of the nationwide public safety broadband network

➢ **Organization**
- FirstNet is an independent authority authorized by Congress

➢ **Funding and Assets**
- FirstNet will spend up to $7B to deploy a nationwide Pubic Safety mobile broadband network
- FirstNet brings 20 MHz of Band 14 spectrum to enable a Public-Private Partnership



➢ **Governance**
- 15 member Board, CEO, President and management team
- Mandate to coordinate with the 50 states, 5 territories, and Washington, D. C.
- Advised by Public Safety Advisory Committee (PSAC), a 42-member committee
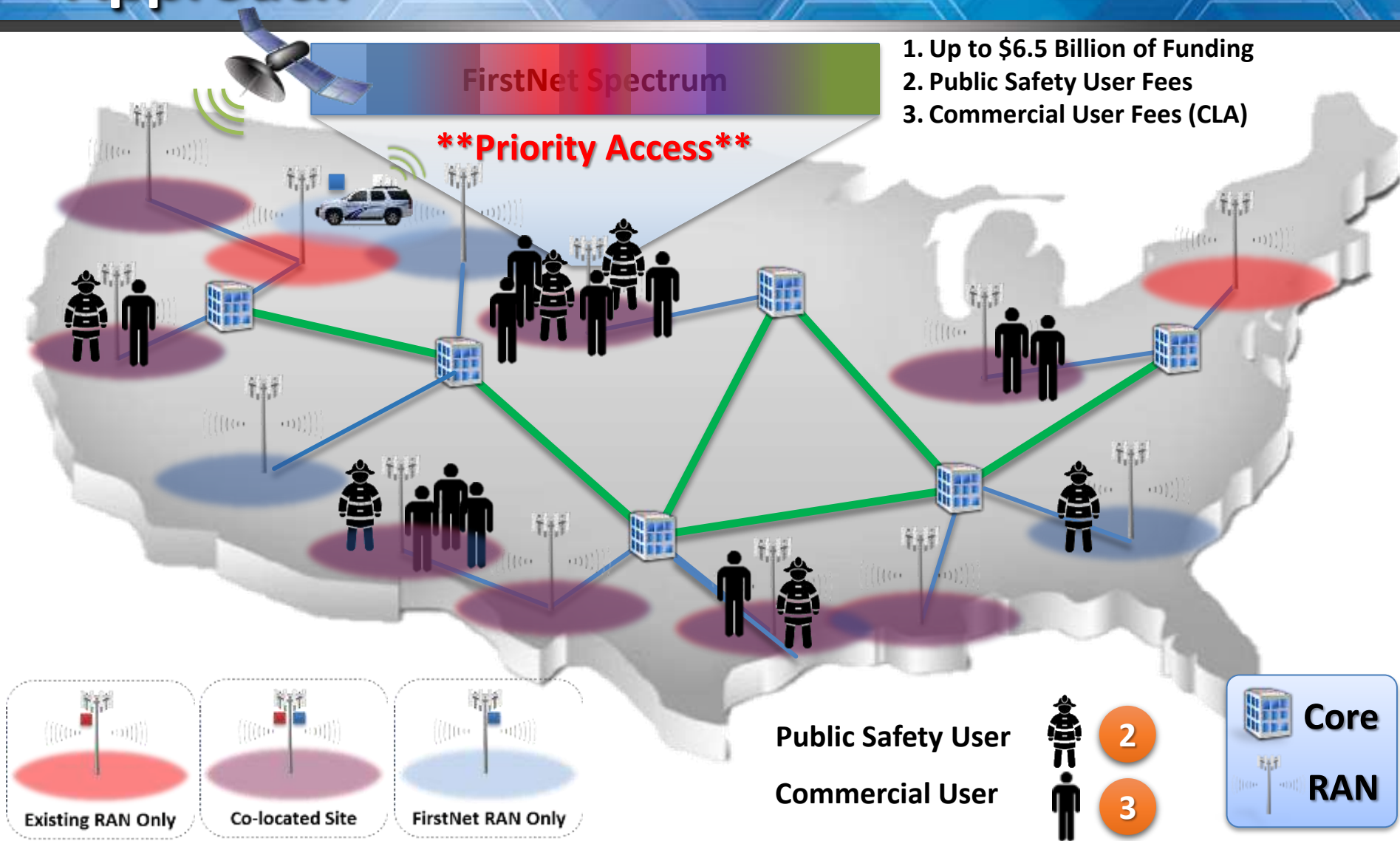
# The FirstNet Opportunity

*In the United States, the number of mobile-connected devices will grow at a compound annual growth rate of 22% from 2014 to 2019. (CISCO)*

*In the United States, mobile data traffic will grow 7-fold from 2014 to 2019, a compound annual growth rate of 47% (CISCO)*

- ***The FirstNet opportunity represents one of the few opportunities to enter the U. S. market, or materially expand an existing U. S. network, with new cleared spectrum***

- The FirstNet opportunity is less capital intensive and less cash intensive than customary auction and build scenarios

- The FirstNet opportunity offers the potential for significant U. S. and international pull through benefits from Public Safety services delivery

# Notional Deployment Approach



FirstNet Spectrum

**Priority Access**

1. Up to $6.5 Billion of Funding
2. Public Safety User Fees
3. Commercial User Fees (CLA)

Existing RAN Only

Co-located Site

FirstNet RAN Only

Public Safety User  2
Commercial User  3

Core
RAN

# Public Private Partnership Value Distribution

## A Unique Public/Private Partnership Will Achieve FirstNet's Mission

### FirstNet Provides

- 20 MHz of prime spectrum
- Up to $6.5 Bn to offset network costs
- Relationship with Public Safety stakeholders
- Total of up to 25 year contract term
- Priority and preemption services

### Partner Provides

- Assets, capabilities and synergies to meet FirstNet stated objectives:
  - Nationwide Core Network
  - Nationwide Radio Access Network (RAN)
  - Nationwide Backhaul
  - Deployment, Operation, Maintenance
- Fixed payment to FirstNet to ensure sustainability

### FirstNet Gets

- Annual payment for value blocks
- Nationwide Public Safety mission achieved, with priority, preemption and a resilient network
- Meet Public Safety needs through partnership SLAs

### Partner Gets

- Cash payments based on buildout milestones
- Rights to monetize 20 MHz of spectrum, market value in the tens of billions
- Total of up to 25 year contract term
- Sticky market of millions of Public Safety users
- Domestic/Global pull through benefits

Guam   America

# RFP and Deployment

- RFP Proposals Submitted May 31, 2016
- Contract Award (Target November 2016)
- State Plans Issued (2017)
- Governors' Decision (2017)
- Initial Operating Capability (2018)
- IOC Phases 2 through 5 in (approximately)12-month increments
- Deployment Expansions to Follow
- Device and Application Ecosystem Development

# Device Portfolio Vision

All inclusive vision building on economies of scale to target COTS pricing and availability

| | | | |
|---|---|---|---|
| **Types** | • Smartphones<br>• Tablets<br>• Feature phones<br>• Ruggedized<br>• All operating systems | • In Vehicle Routers<br>• Hotspots / MDTs<br>• Modems<br>• High Power UE/ Vehicle Network System<br>• Range extension / rural / repeaters<br>• Satellite fallback | • Hybrid<br>• Wearables<br>• Hands free<br>• Gloved usage |
| **Connectivity** | • LTE, 3G, Satellite<br>• Wi-Fi, Wi-Gig<br>• NFC<br>• Bluetooth<br>• Tethering | • LTE, 3G, Satellite<br>• Wi-Fi<br>• Ethernet<br>• USB | • LTE, 3G, Satellite<br>• Wi-Fi, Wi-Gig<br>• NFC<br>• Bluetooth<br>• LMR / P25 |
| **Current Band 14 Support** | Only a few | Only a few | More to come |

# FirstNet and the Public Safety Device Ecosystem

## Strategy

- Create rich and diverse device and application ecosystems serving all public safety needs
- Leverage industry standards, commercial technologies and best practices for scale
- Value add propositions which utilize Commercial off the Shelf (COTS) devices and apps

## Vision

- Drive continuous innovations to meet public safety's evolving needs
- Support a vibrant public safety developer community
- Meet high levels of security and operational needs

## Expectations

- Proposal for all components of the ecosystems in the RFP
- Best of breed solutions on all fronts
- Ever growing portfolio of devices, apps, services and more

# FirstNet and Public Safety Applications

## Strategy

- Create apps that enable public safety user adoption
- Leverage scale and technologies of the commercial market

## Vision

- Needs of public safety to drive continuous innovation
- Support for a  vibrant public safety developer community
- Growing portfolio of public safety apps

## Ecosystem

- Secure coexistence of FirstNet and commercial apps on devices
- Best-of-breed solutions

# Internet of Public Safety Things - IoPST

Sensors

Variety of drones and robots
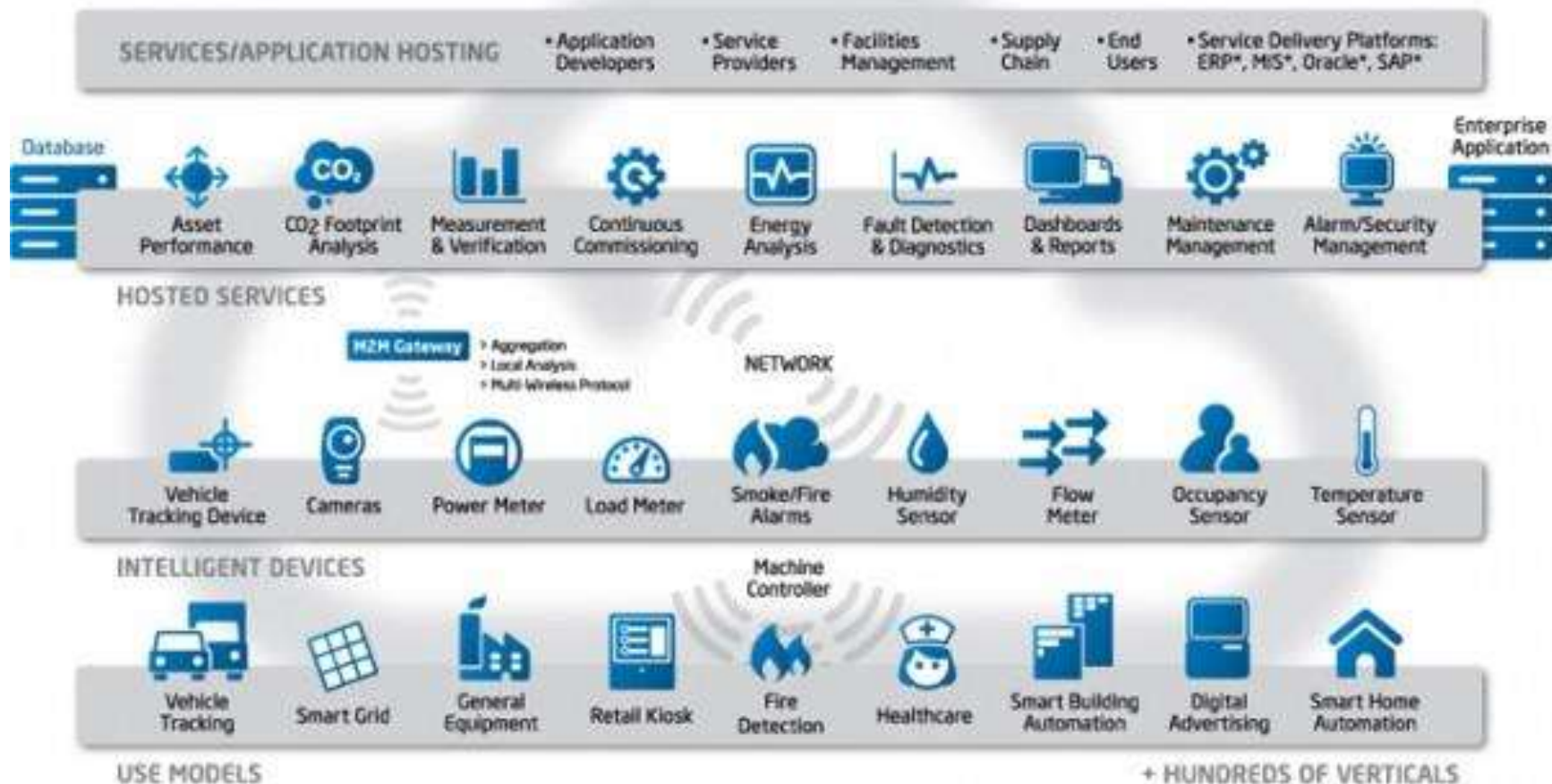
Temporary Cameras

Temporary installations sensors, monitors & etc.

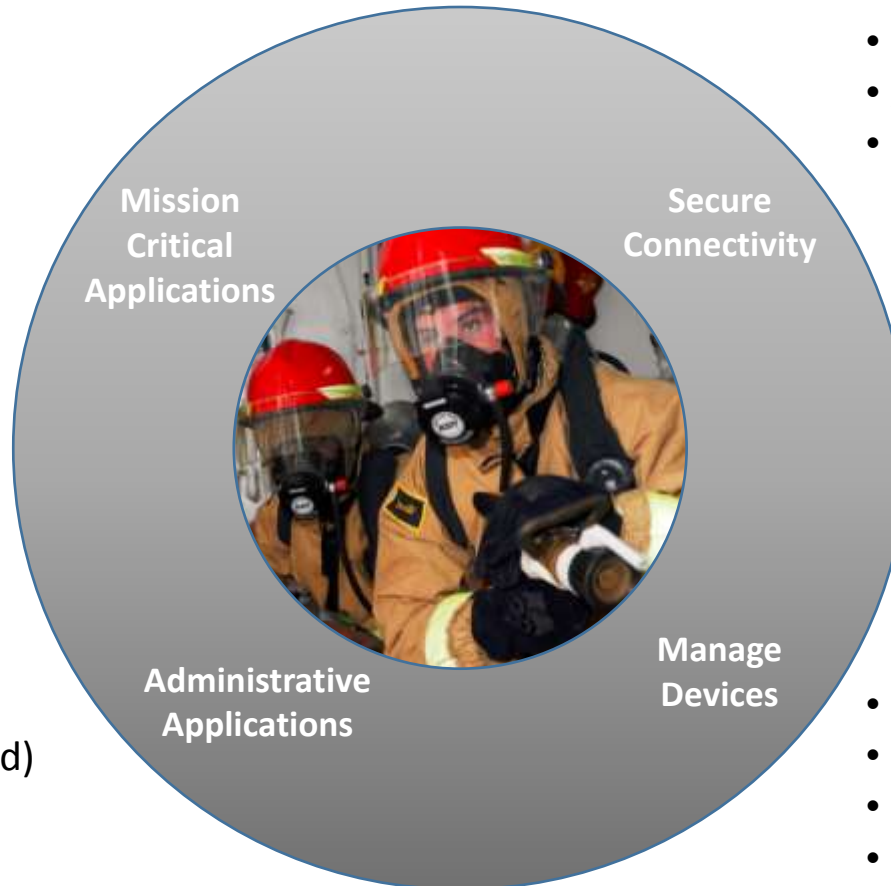# IoT  Ecosystems

# Fire Services Apps and Services

- MC Push to Talk
- CAD
- Mapping
- Weather/Traffic
- Incident Management
- Situational Awareness
- Site Logging
- Video sharing
- Emergency Guides
- Equipment Calculators
- Secure Browser

- Email/Text/Calendar
- Office Tools (PDF, Word)
- Records Management
- Reporting
- Database Access
- Medical References

**Mission Critical Applications**

**Secure Connectivity**

**Administrative Applications**

**Manage Devices**

- Strong User Authentication
- Application VPN
- Secure Mobile Gateway
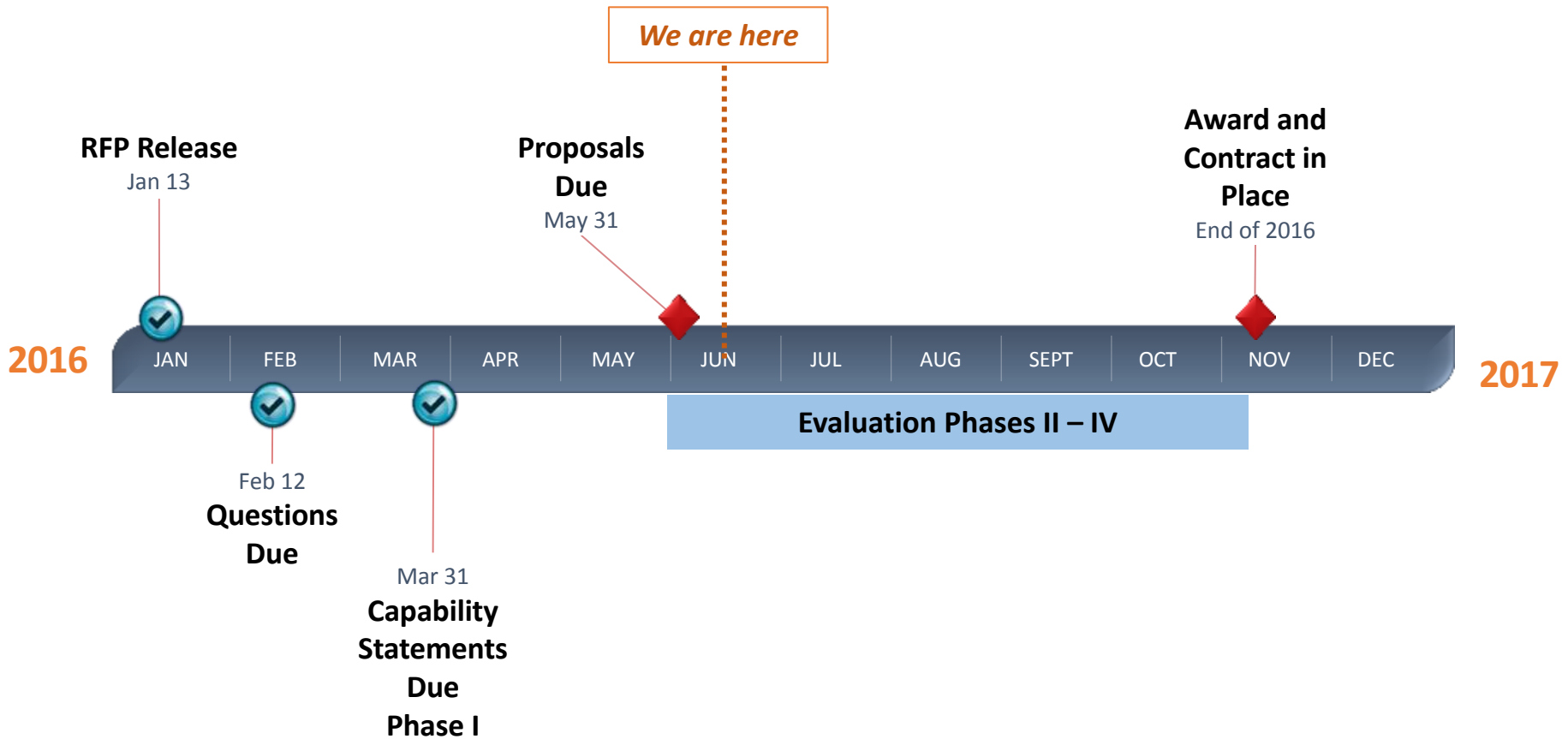
- Device Authentication
- MDM Policy Controls
- Containerization and Encryption
- Device lock and Data Wipe
- Compliance Monitoring

# Technology Challenges

- Solving for Z-axis
  - necessity for vertical location identification (height above or below ground level)
  - new generation of location technology could collect altitude data from smartphones, tablets, dongles and other devices
  - researching and analyzing different indoor location technologies

# Location Based Services

- **Software & Applications**
  - Creating an Optimized Common Operating Picture
  - Promoting Data Interoperability Across Jurisdictions and Platforms
- **Devices**
  - Device Convergence Supporting Greater Mobility
  - Diversified Approaches Improve Indoor Accuracy Positioning and Situational Awareness
- **Networks**
  - Increased Coverage
  - Interoperability of Heterogeneous Networks Enables Efficient Delivery of LBS

# Evaluation Phase Has Kicked Off



**We are here**

**RFP Release**
Jan 13

**Proposals Due**
May 31

**Award and Contract in Place**
End of 2016

**2016**

| JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEPT | OCT | NOV | DEC |

**2017**

**Evaluation Phases II – IV**

Feb 12
**Questions Due**

Mar 31
**Capability Statements Due Phase I**

# FirstNet Post-Award

- Proposed timeline for FirstNet NPSBN deployment is in five, 12-month phases from IOC to FOC at 60 months.
  - IOC -1 Expected at 6 months post-award
  - RFP award expected in late 2016
- Expectation that the NPSBN will be present in and around population centers and major lines of communications early on in deployment IOC-1, IOC-2) along with rural coverage to meet milestones.
- Key features of the network will include Resilience, Priority and Preemption, Advanced location-based services.
- Expected that network presence, capabilities and features will expand from IOC-1 through FOC and beyond as the network and LTE technologies continues to evolve.

www.firstnet.gov

# Thank You

Christopher Algiere
Federal Consultation Lead
User Advocacy
First Responder Network Authority
12201 Sunrise Valley Dr. M/S 243
Reston, VA 20192

christopher.algiere@firstnet.gov

Office:    571-665-6034
Mobile:  202-763-6669