



FirstNet™

FirstNet Combined Committee Meeting

September 13, 2017





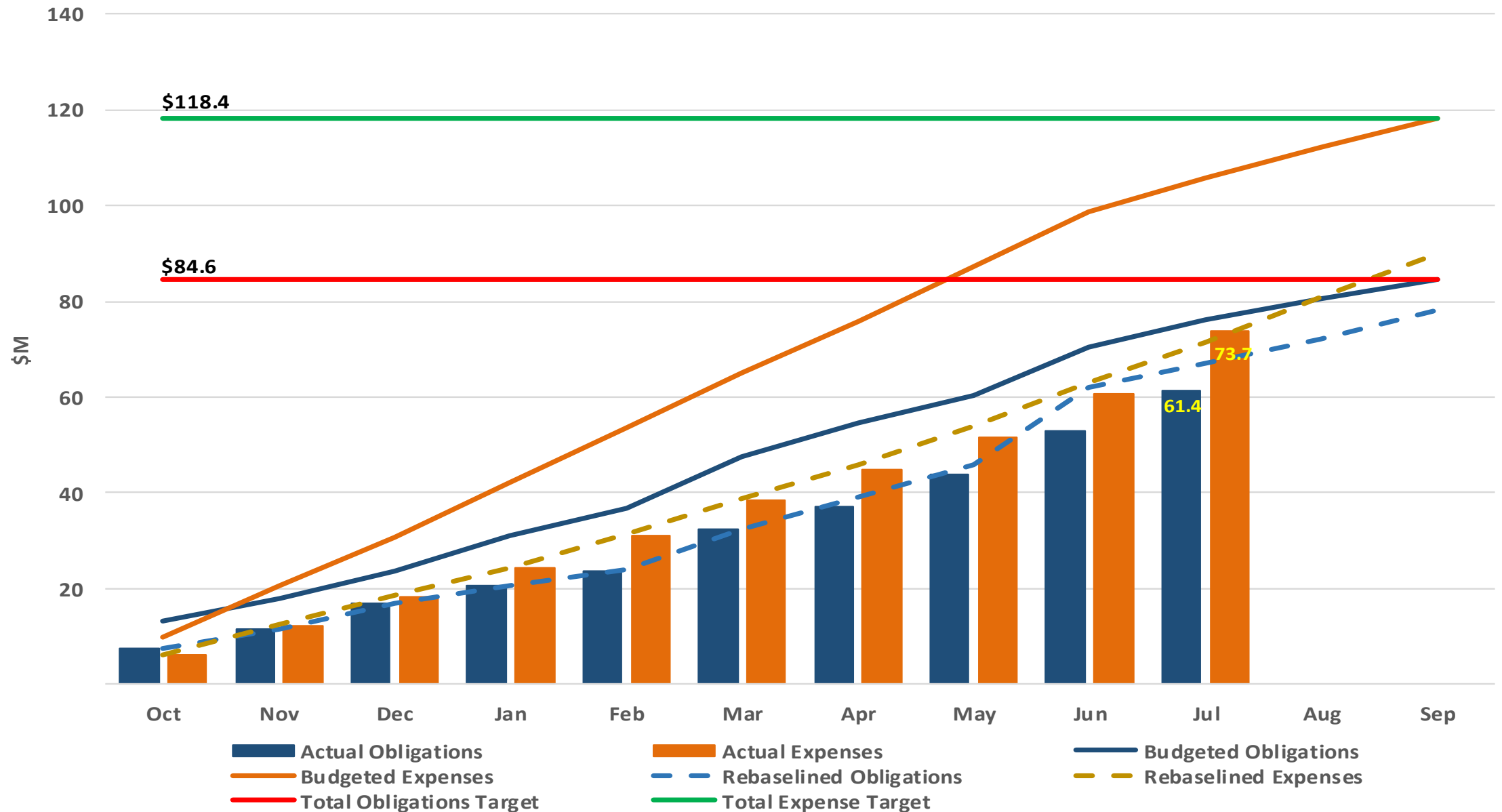
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Finance Committee Update

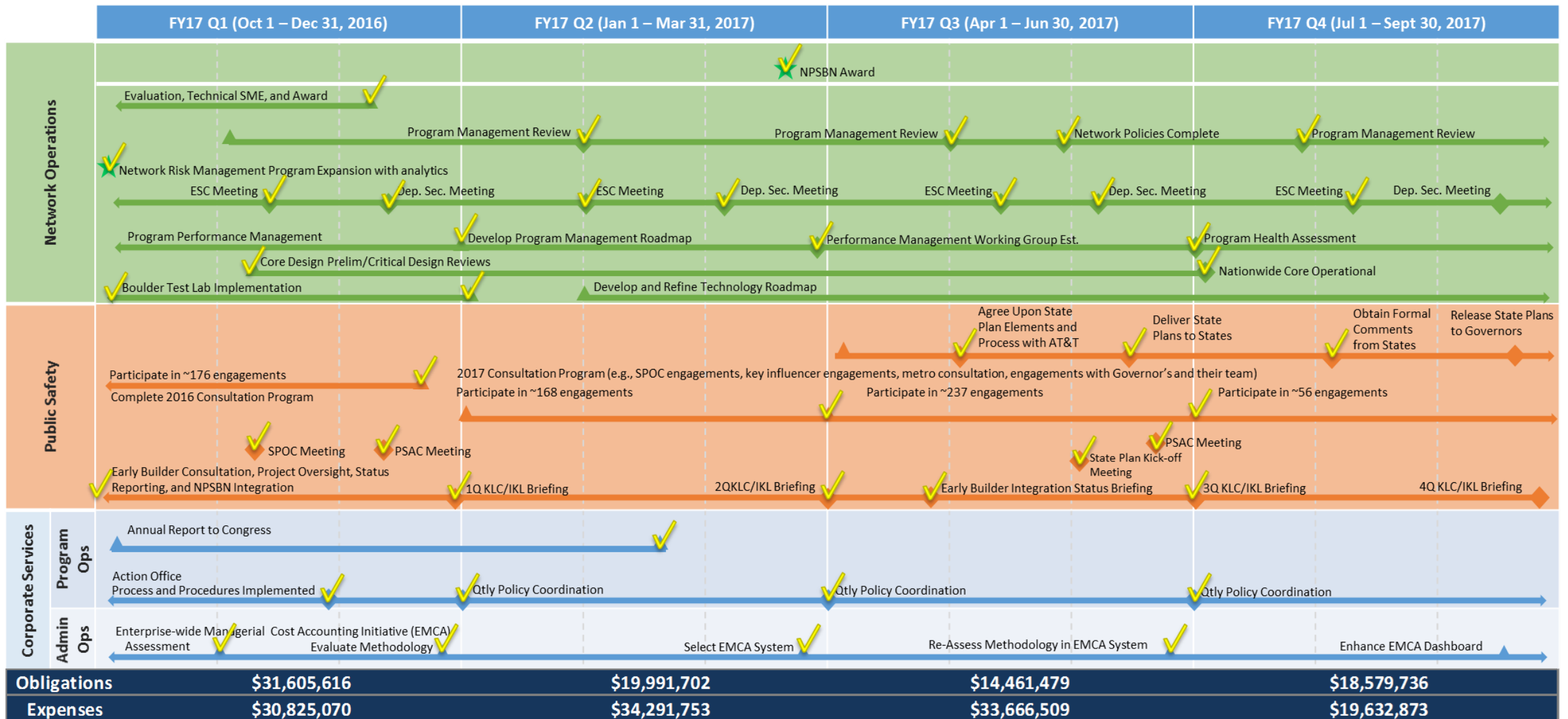
James Douglas, Finance Committee Chair
Kim Farington, Chief Financial Officer



FirstNet Overall FY 2017 Cumulative Status

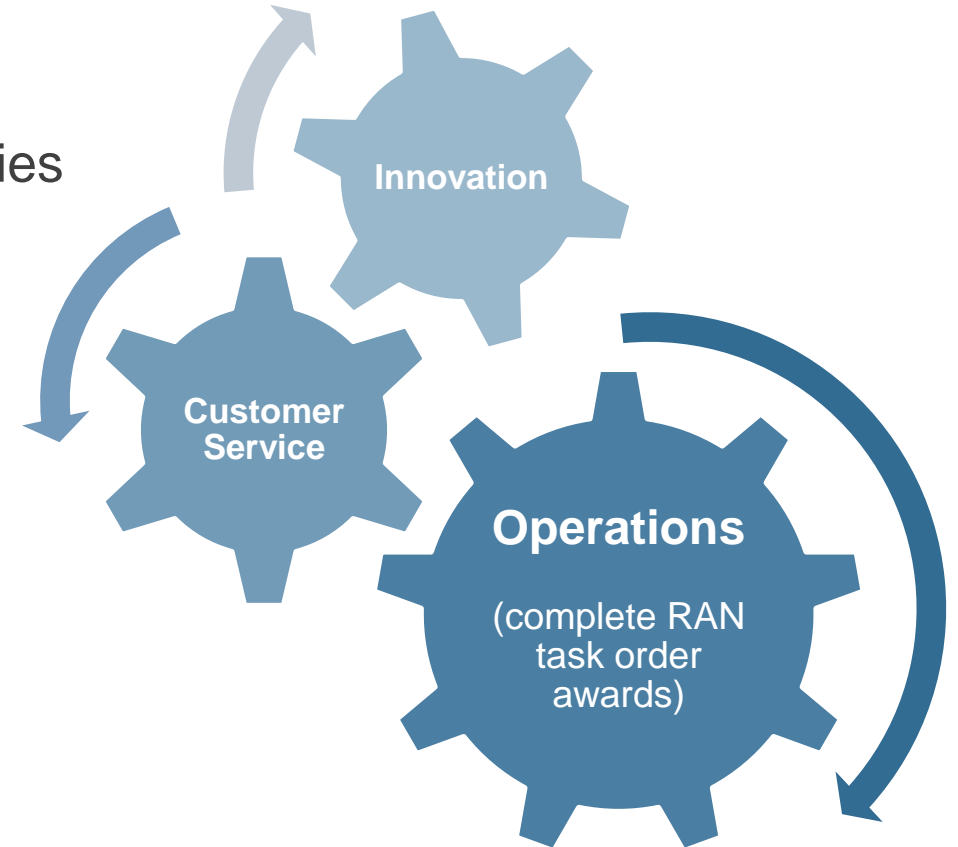


FirstNet Summary FY 2017 Completed Milestones



FirstNet Strategic Plan – FY 2018 Priorities

- Initiate RAN build-out for opt-in states
- Testing current and future network features and capabilities
- Evolve and deliver applications
- Complete FirstNet Core
- Update services and security enablers of the core
- Initiate Band 14 network and FirstNet field operations



Management Recommendation – FY 2018 Budget

- FY 2018 recommended operational budget request: \$73.5 million
 - 13% decrease from FY 2017 budget (\$84.6 million)
- Reduction based on
 - Streamlining processes in post-award environment
 - Focusing on improved resource optimization
 - Reducing reliance on contractors and more on full-time staff
- Assumptions driving FY 2018 budget total include funding for
 - Staff
 - Board expenses
 - Resources needed to achieve all FY 2018 goals and objectives, and meet FirstNet mission

FY 2018 Workstreams

Network operations

- Activities related to the implementation, operations, and oversight of NPSBN

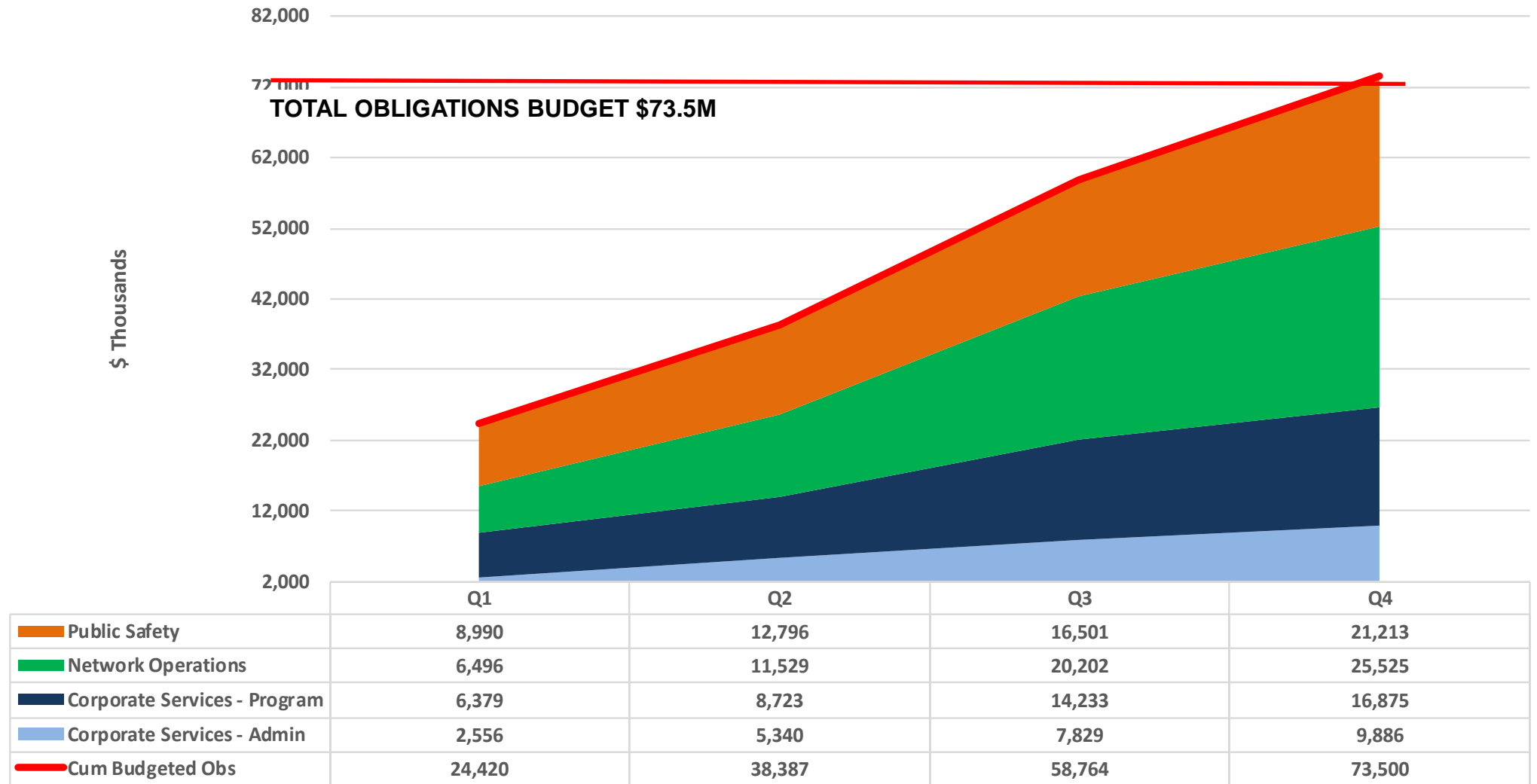
Public safety

- Activities related to customer outreach, product management communications, and government affairs

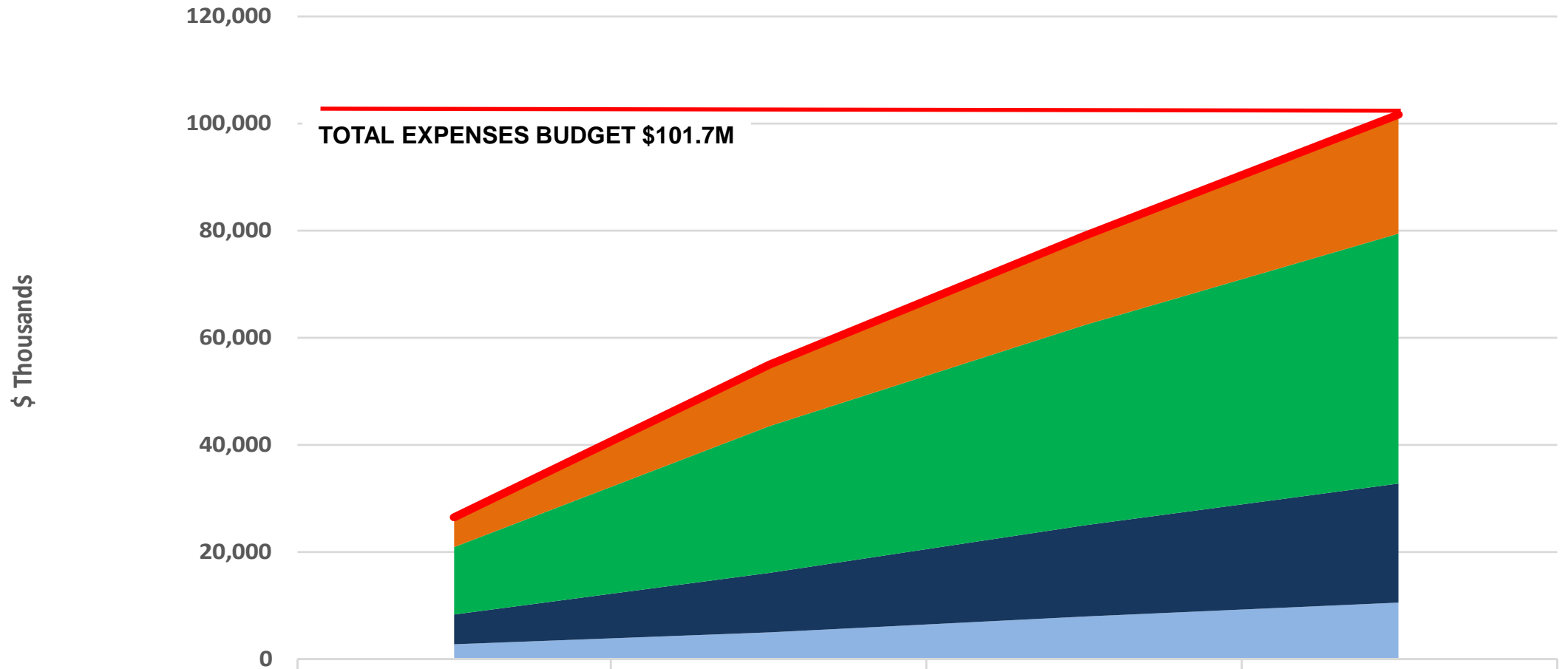
Corporate services

- Program operations
 - Administrative costs related to network operations and public safety
- Administrative operations
 - Administrative costs of maintaining the FirstNet enterprise not directly assigned to network operations or public safety delivery
 - Administrative expenses subject to the \$100 million, 10-year cap

FY 2018 Cumulative Obligations by Workstream



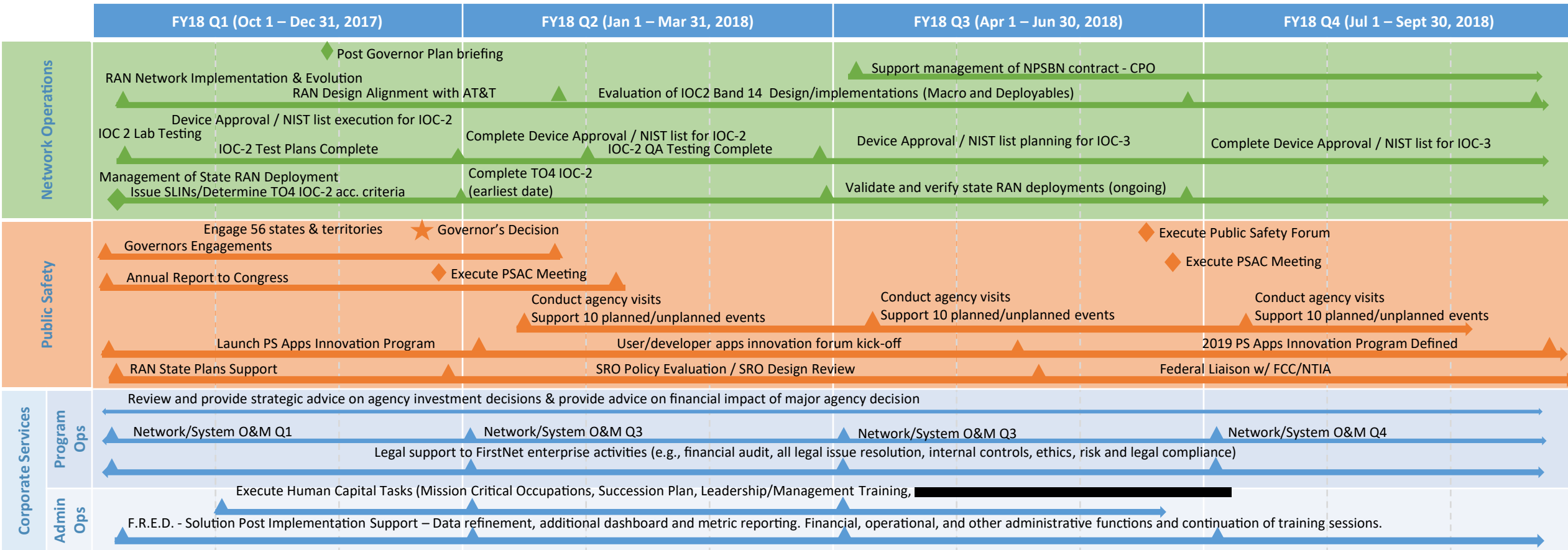
FY 2018 Cumulative Expenses by Workstream



| | Q1 | Q2 | Q3 | Q4 |
|------------------------------|--------|--------|--------|---------|
| Public Safety | 5,536 | 11,487 | 16,944 | 22,358 |
| Network Operations | 12,353 | 27,328 | 37,201 | 46,914 |
| Corporate Services - Program | 5,833 | 11,191 | 17,322 | 22,267 |
| Corporate Services - Admin | 2,532 | 4,965 | 7,672 | 10,256 |
| Cum Budgeted Expenses | 26,254 | 54,970 | 79,139 | 101,795 |

FirstNet Summary FY 2018 Milestones

This slide was redacted 2/19/25. For access to the original, email info@FirstNet.gov.



| | | | | |
|-----------------------|---------------------|---------------------|---------------------|---------------------|
| Obligations | \$24,420,261 | \$13,967,173 | \$20,376,353 | \$14,736,316 |
| Total Expenses | \$26,254,119 | \$28,716,290 | \$24,168,441 | \$22,656,486 |

Finance Committee Resolution 18

1. **Recommend** the Board approve the proposed FY 2018 budget of \$73.5 million on an obligations basis.
2. **Recommend** the Board authorize management to enter into the necessary agreements to meet the FY 2018 FirstNet work stream milestones.
3. **Recommend** the Board authorize management to reallocate up to 10% of the funds from any of the 3 major activity categories to another major activity category. Management may exceed the approved obligation level of the 3 major activity categories by no greater than 10% in the aggregate or by 15% in any individual major activity category.



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Governance and Personnel Committee Update

Sue Swenson, Governance and Personnel Committee Chair



Board Member Nomination Update

- Board member terms extended until 2017 appointments or Dec. 31, 2017, whichever is earlier
- National Telecommunication and Information Administration (NTIA) received 31 submissions of interest in response to the April 2017 *Federal Register* notice
- The Governance and Personnel Committee has interviewed and made a formal recommendation to NTIA.
- NTIA has made a formal recommendation to the Secretary of Commerce
- **Next steps:** Appointments shall be made and announced by the Secretary of Commerce
 - Projected timeline for appointment: September or October 2017

FirstNet team wins Commerce Gold Medal Award



Recipients: FirstNet RFP Team

- **Mouncef Belcaid**
Director, Solutions Services
- **Terri Callahan**
Contracting Officer
- **Brian Hobson**
Director, State Plans
- **Brian Kassa**
Director, Tech. Planning & Development
- **Paul Madison**
Deputy Chief Counsel
- **James Mitchell**
Senior Director, Network Program Office
- **Peggy O'Connor**
Director, Relationship Services
- **John Quinlan**
Deputy CFO, Strategic Planning
- **Matt Schiller**
Director, Financial Strategy & Development
- **Patrick Schwinghammer**
Director, RAN

About the award

- Team received award in **Personal and Professional Excellence** category for implementing/executing an innovative acquisition and public-private partnership model for the Nationwide Public Safety Broadband Network
- Highest honorary award given by Commerce Dept.
- Awarded for distinguished performance characterized by extraordinary, notable, or prestigious contributions
- Commerce Secretary **Wilbur Ross** to present award at the 69th Annual Honor Awards Ceremony, Sept. 26, Washington, D.C.



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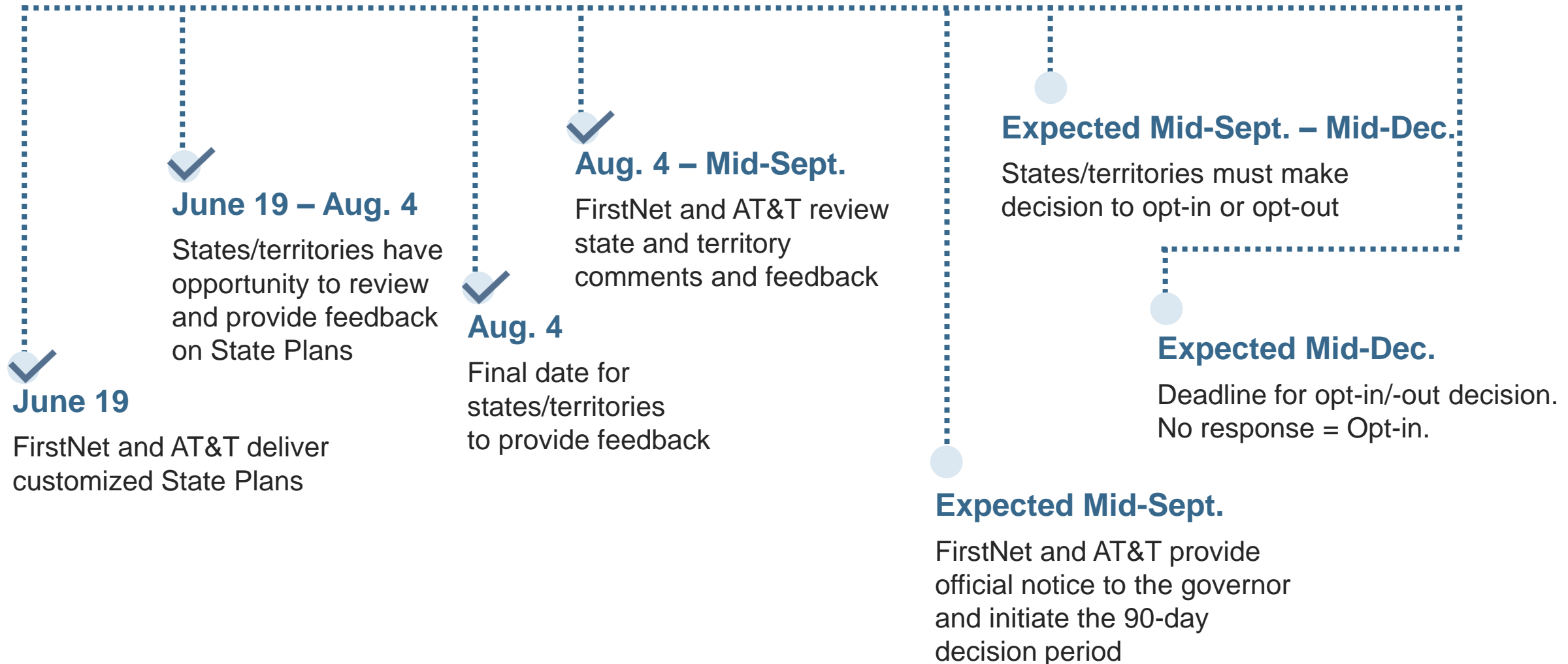
Consultation and Outreach Committee Update

Jeff Johnson, Consultation and Outreach Committee Chair

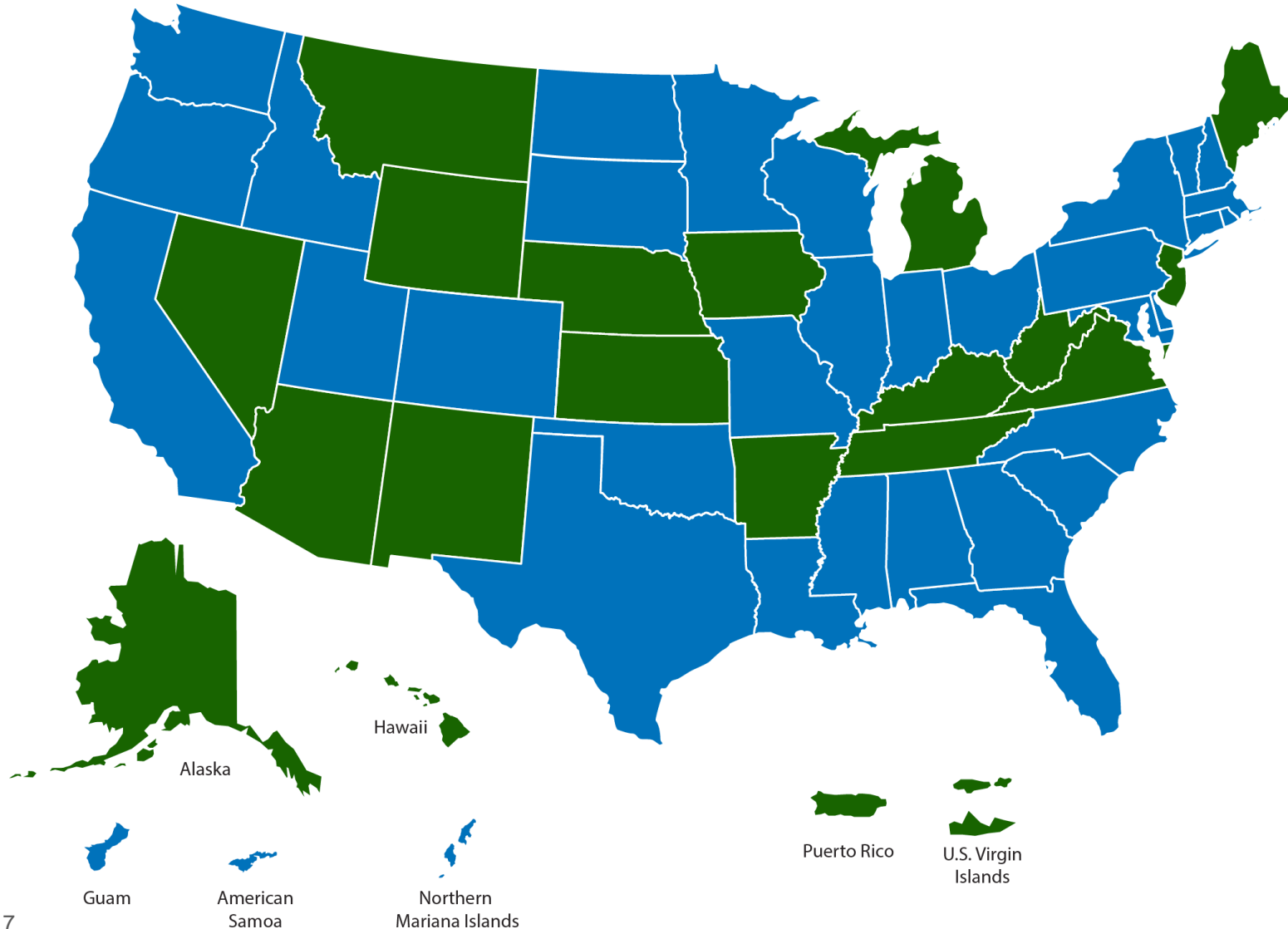
Rich Reed, Chief Customer Officer



FirstNet State Plan Timeline



20 “Opt-In” States/Territories



- Alaska
- Arizona
- Arkansas
- Hawaii
- Iowa
- Kansas
- Kentucky
- Maine
- Michigan
- Montana
- Nebraska
- Nevada
- New Jersey
- New Mexico
- Puerto Rico
- Tennessee
- U.S. Virgin Islands
- Virginia
- West Virginia
- Wyoming

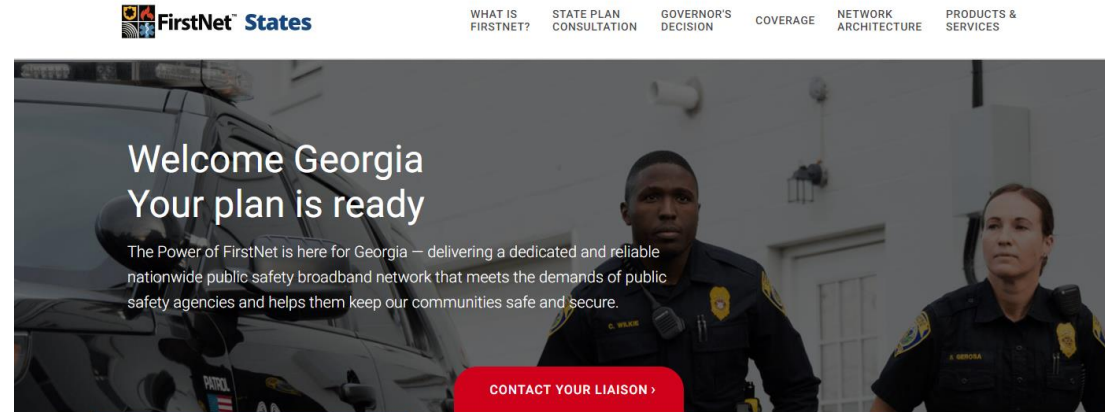
State Plan Portal Updates Summary



- What is FirstNet?
- About FirstNet
- State Plan Overview
- Acquisition Overview
- Value of FirstNet

- Governor's Decision
- State Exec Summary
- Acceptance Guide
- Opt-in Process
- Opt-out Guide

- Network Architecture
- Radio Access Network
- Core Network
- Network Implementation
- Security



GEORGIA COVERAGE

100%

Population - FirstNet enables public safety to better serve their communities with a dedicated broadband network

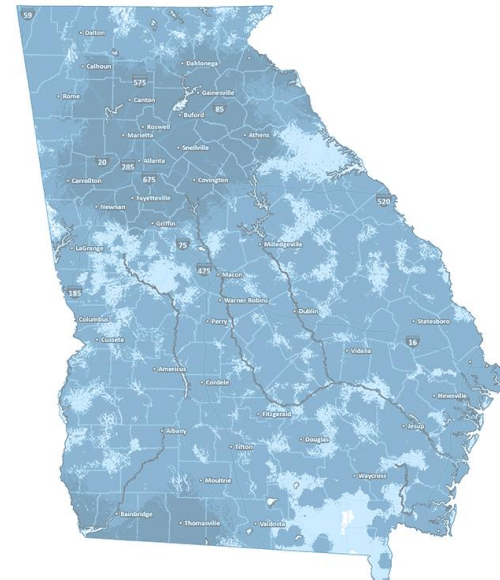
99.7%

Geography - FirstNet delivers a dedicated public safety network across your state

99.9%

Coverage Objectives - FirstNet provides broadband services at locations your public safety identified as priorities

[CHECK YOUR STATE COVERAGE](#)



- Coverage
- Nationwide Coverage
- Rural Providers
- Interactive Coverage Map

- Products & Services
- Features
- Devices
- Wireless Rate Plans
- Applications
- Business Operations

- State Plan Consultation
- State Consultation
- Nationwide Engagement



Post State Plans: Promoting Innovation

- **ENGAGE with public safety agencies**
 - Products and services individuals/agencies need to improve/enhance their experience with FirstNet network
 - Engaging public safety organizations to identify existing uses/needs
- **COLLABORATE with public safety innovators and entrepreneurs**
 - Work with public safety innovators and entrepreneurs to solve public sector issues
 - Convene companies to promote developing public safety apps that meet user community needs
- **CONNECT FirstNet to innovation community**
 - Increase national dialogue on public safety technology with innovation community
 - Recently participated in Smart Cities Connect Conference and NIST's Global Cities Team Challenge; worked with city and regional technology incubators; presented at Department of Commerce NACIE
- **LAUNCH Applications Development Ecosystem and developer program**
 - Kick off public safety applications developer program with AT&T (IOC-1), including development, testing, certification, and publishing processes
 - Identify standards to drive innovation and interoperability



FirstNet™

Technology Committee Update

Neil Cox, Technology Committee Chair
Jeff Bratcher, Chief Technology Officer



Applications Ecosystem

Strategy

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

Vision

- Innovate continuously to meet the needs of public safety
- Support a vibrant public safety developer community
- Enable development of a growing portfolio of public safety apps

Ecosystem

- Facilitate secure coexistence of FirstNet and commercial apps on devices
- Offer best-of-breed solutions

Applications Ecosystem

ICAM



Federated
ICAM

APP DEV ENV



Platform for
developers

TEST & CERT



Certify = test
against criteria

APP STORE



Coexist with
commercial apps

SDP

Application Layer

Open APIs

Service Delivery
Platform

Network Services

CLOUD SERVICES



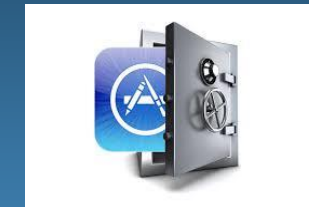
Cost-effective
agency options

LOCAL CONTROL



Agency
Controls

SECURITY



App and
data security

Applications Standards Strategy: Pillars for Driving Standards

| TECHNICAL | MARKETING | LEGISLATIVE | STAKEHOLDERS |
|---|---|--|---|
| <ul style="list-style-type: none">• Drive adoption of existing standards or creation of new ones• Drive economies of scale• Improve user experience• Minimize interop challenges | <ul style="list-style-type: none">• Create strategies to encourage development and use of apps that employ standards• Lower barriers to entry for new public safety app developers | <ul style="list-style-type: none">• Advocate changes to grant programs encouraging (requiring) selection of apps that employ standards | <ul style="list-style-type: none">• Include PSAC, public safety users, agencies, developers, AT&T, academia, associations, and federal partners |

Applications Standards Focus Areas

Applications Base Technologies

- Location apps
- Information exchange
- Situational awareness
- Data analytics
 - Social media
 - RT video



- E-citations & court systems
- Digital evidence
- Facial recognition
- Field reporting



- CAD systems
- Integrated dispatch
- NG 9-1-1
- Electronic citizen reporting
- Government records
- Alarm management



- Personnel biometrics
- Personnel location
- 3D building plans



- Electronic health records
- En-route collaboration
- Telemedicine

Future Technologies

- Z-axis acquisition
- MC-PTT
- MC-Data
- MC-Video
- P2P Apps
- IoT
- Virtual Assistants
- AR/VR
- ICAM

Emerging Applications Technologies

Virtual Assistant (VA)

- Software agent that can perform tasks or services for an individual
- Envision VAs that understand the language of public safety

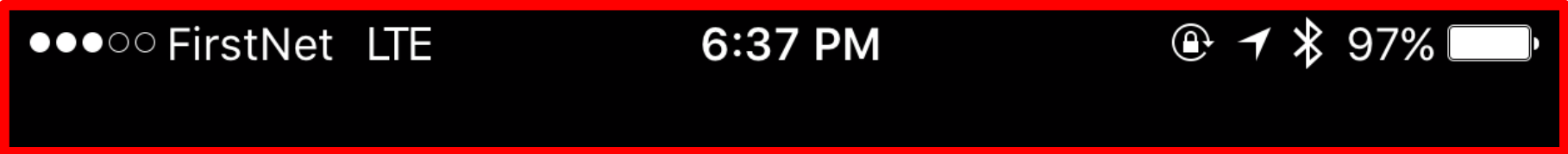
Virtual Reality (VR)

- Use of computer technology to create a simulated environment
- Envision increasing use of VR in public safety training

Augmented Reality (AR)

- Augmentation of the real world with digitally generated sensory inputs like visuals, sound, or GPS data, to enhance perception of reality
- Envision AR providing real-time, actionable intelligence

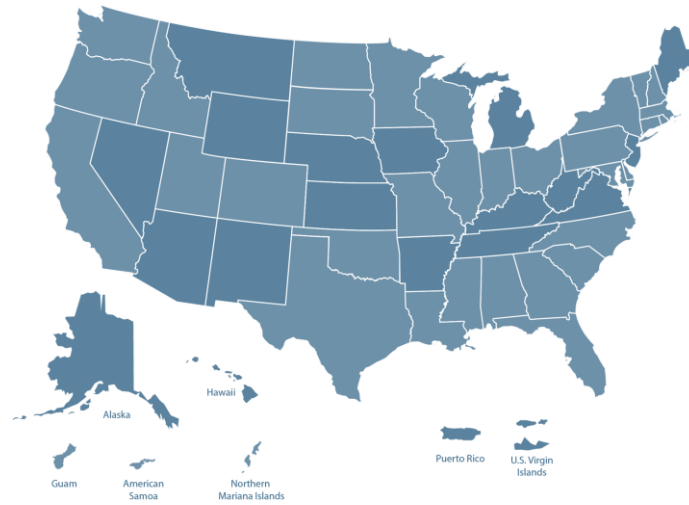
FirstNet: For Public Safety, by Public Safety



Device Portfolio Roadmap Influencing Strategy



**PUBLIC SAFETY
ADVISORY COMMITTEE**



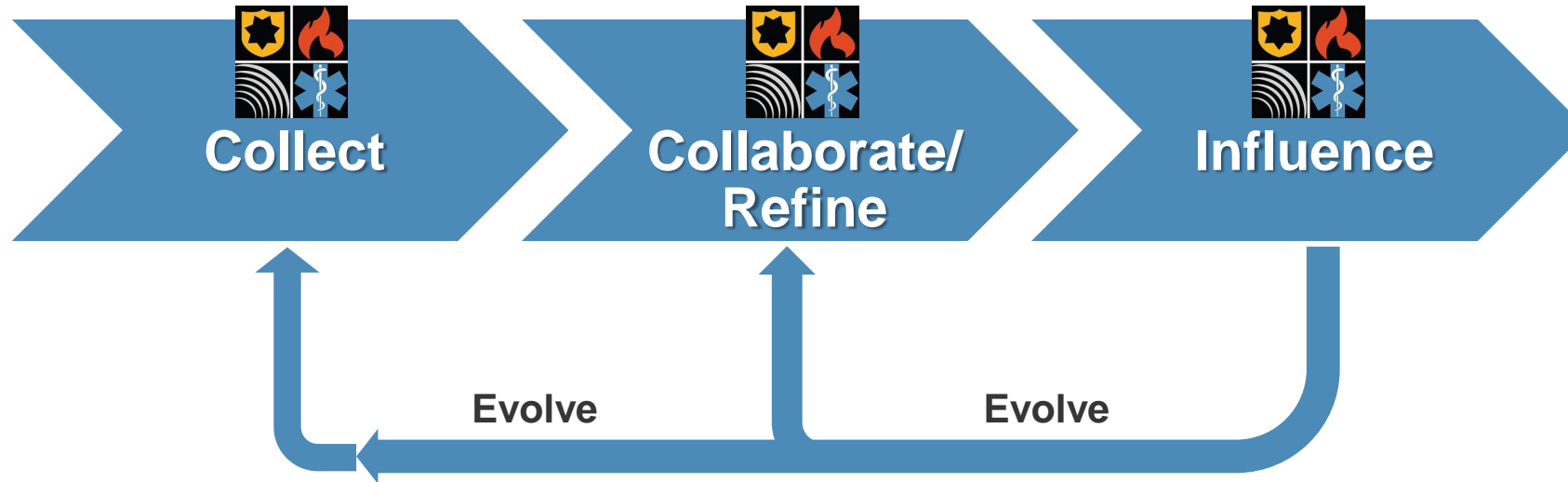
Protect



Connect



**Situationally
Aware**



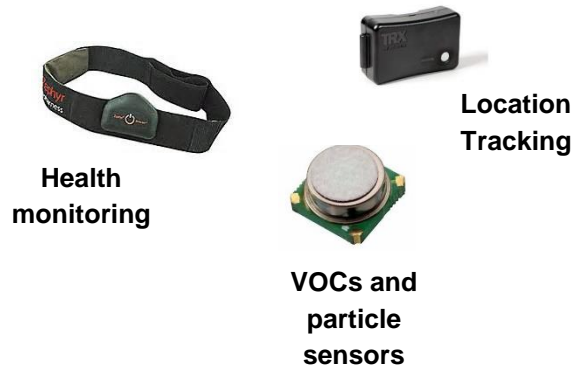
Distilling the needs of public safety to influence
the FirstNet Device Ecosystem

Fire Fighter Vision

Protect



- Real-time monitoring of firefighter's well-being
- Embedded VOCs, chemical, and radiation sensors in firefighters clothing
- Locating firefighters and victims, ideally to <1m



Connect



- Rugged devices and accessories that can withstand the tough environments*



- Wirelessly enabling existing frontline devices to share data in real-time e.g. PASS

*Meets NFFPA's codes and standards

** Personal Alert Safety System

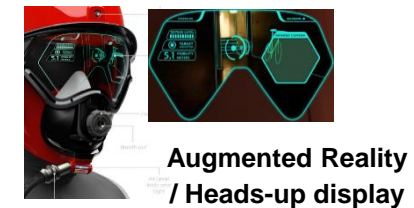
Situationally Aware



- Surveillance and search and rescue using effective payloads e.g. camera, IR, LIDAR



- Hands-free, timely presentation of contextual information e.g. hazards, environment and assets



For fire, the focus is rugged devices, hands-free operation and presentation of contextual information

Law Enforcement Vision

Protect



- Evidence-based policing: body-worn and vehicle video



Body and Vehicle Cams



Smart Holster and Gun

- Instant identification of suspects



Facial Recognition



DNA Biochips

Connect



- Secure, ease-of-use access to sensitive information – license, criminal, medical databases



Biometrics



High Security Hardware Module

- Ad-hoc connection of all body worn devices to the NPSBN



PAN Smart Hub

Situationally Aware



- IoT for intelligence-led policing
 - Urban area deployed license plate readers, gun spotter sensors, CCTV



Real-time Intelligent Sensing

- Hands-free, timely, contextual virtual assistance



Virtual Assistance

For law enforcement, security is an emphasis together with the presentation of contextual information

Emergency Medical Services (EMS) Vision

Care/Protect



- Patient tracking for complex incidents potentially linking to existing PHRs



On-Patient ID Band

- Telemedicine for post-discharge care by community paramedics
- Integration of telemetry, incident and personal health record information



Connect



- Share diagnostic and monitoring information to enhance decision-making and treatment capability

Ultrasound



Ambulance CT Scan

ECG



- NPSBN enabled rugged MDTs/ tablets for dispatch and clinics



Situationally Aware



- Exchange real-time audio/video feeds with hospitals and physicians while on the scene and during transport

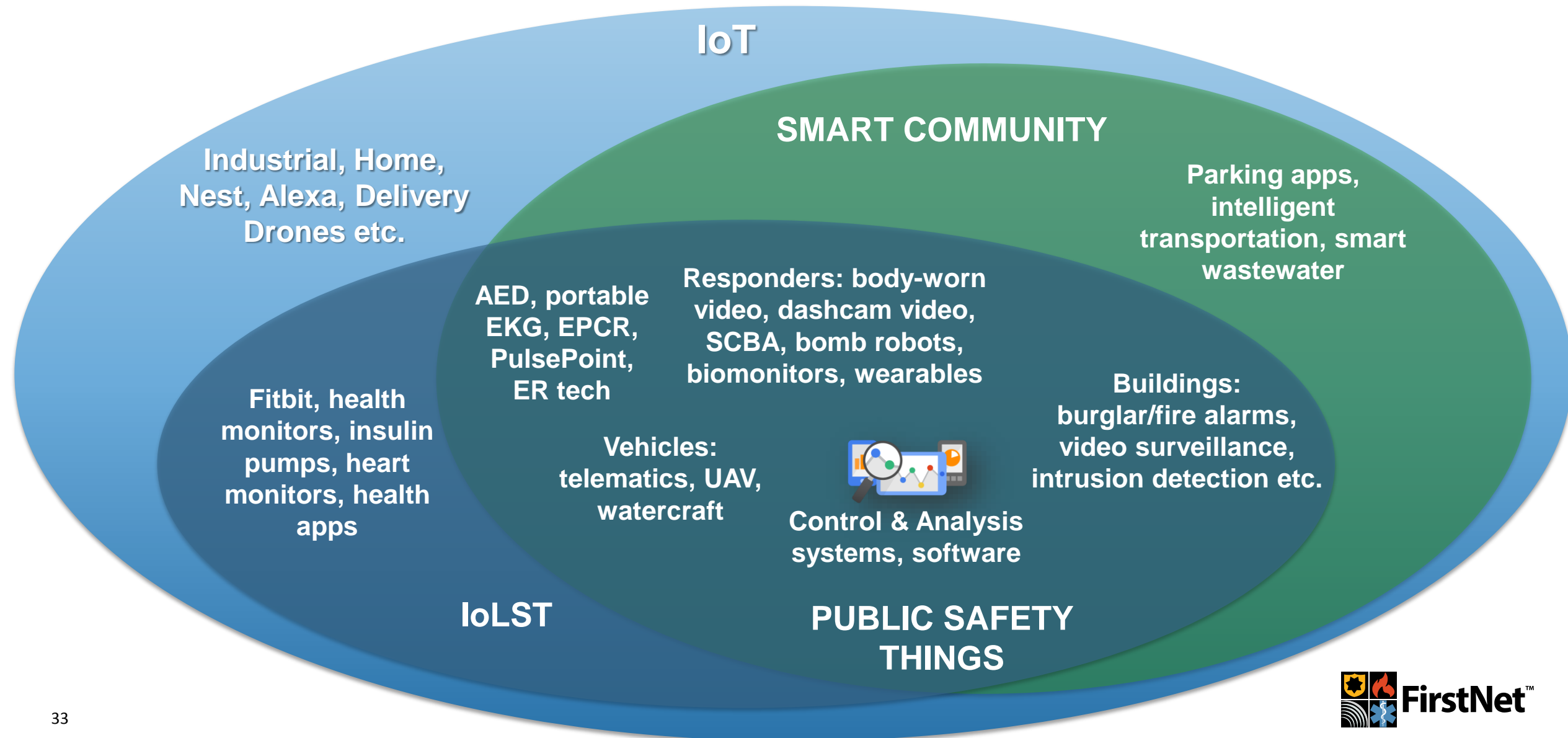


- AED location and “readiness” information with CAD



For EMS the focus is the timely delivery of on-scene, in-transit and post-discharge telemedicine

The Internet of Life-Saving Things (IoLST)



Radio Access Network – Multi-Band Solution for Public Safety

Capacity

- Additional bandwidth
- Lower cost/bit as can often deploy more spectrum vs. new sites to add capacity

Coverage

- More sites & in-building DAS available to Public Safety communications

Time To Market

- Utilizing an established RAN network with legacy spectrum allows to launch Public Safety services sooner.

Resiliency

- Wireless interference tends to be band specific & multiple spectrum bands allows for alternative communication paths if one has interference

Faster Data Speeds

- Combining separate LTE bands (Carrier Aggregation) allows faster data speeds by combining multiple LTE spectrum



RAN Future Innovation/Technology



- **Mobile diagnostics:** Monitoring public safety's network experience and extent of coverage 7x24x365 by device. Would also help understand the unique behaviors and needs of public safety in guiding future network reinvestment.

- **Aerial strategy**

- **Deployables:** Analyzing available aerial eNB site deployable technologies, potential applications of those technologies and what business case may support these aerial deployable range extension technologies
- **User equipment:** Analyzing how a device could be utilized mid-flight (e.g., in a helicopter or with a drone)
- **Data comms in aerial** (non-LTE): Network access when LTE is unavailable for manned aircraft

- **Coverage extension options:** Analyzing what equipment configurations may extend or augment coverage


- Vehicle Network System (VNS)
- Satellite services
- Bi-Directional Amplifiers (BDA)
- High Power User Equipment (HPUE)
- Device-to-Device (D2D) services

RAN - Innovation Initiative – Aerial Strategy

Purpose:


- Aerial units are and continue to be an **essential tool** for Public Safety
- The ability to provide data communications to those aerial units is a **growing** need for first responders.
- Aerials with the capability to augment coverage can be faster and more cost effective than the traditional means.
- FirstNet OCTO is exploring how the NPSBN can support the best use of there aerial units.

Aerial Scenarios:




Aerial LTE User Equipment

- LTE access for drones and low altitude aircraft



Providing Terrestrial Coverage via Aerial

- Deployable flying cell site to augment LTE coverage



Data Comms. Inside Aerial (non-LTE)

- Access when LTE is unavailable for manned aircraft

FY2018 Goals:

- Market Research for Use Cases Development
- Study Industry Tech. & Equip. Roadmap
- Explore National Partner Capabilities
- Complete Aerial RF Modelling Study

Example Use Cases

Search & Rescue

Medical Supply Delivery

Surveillance

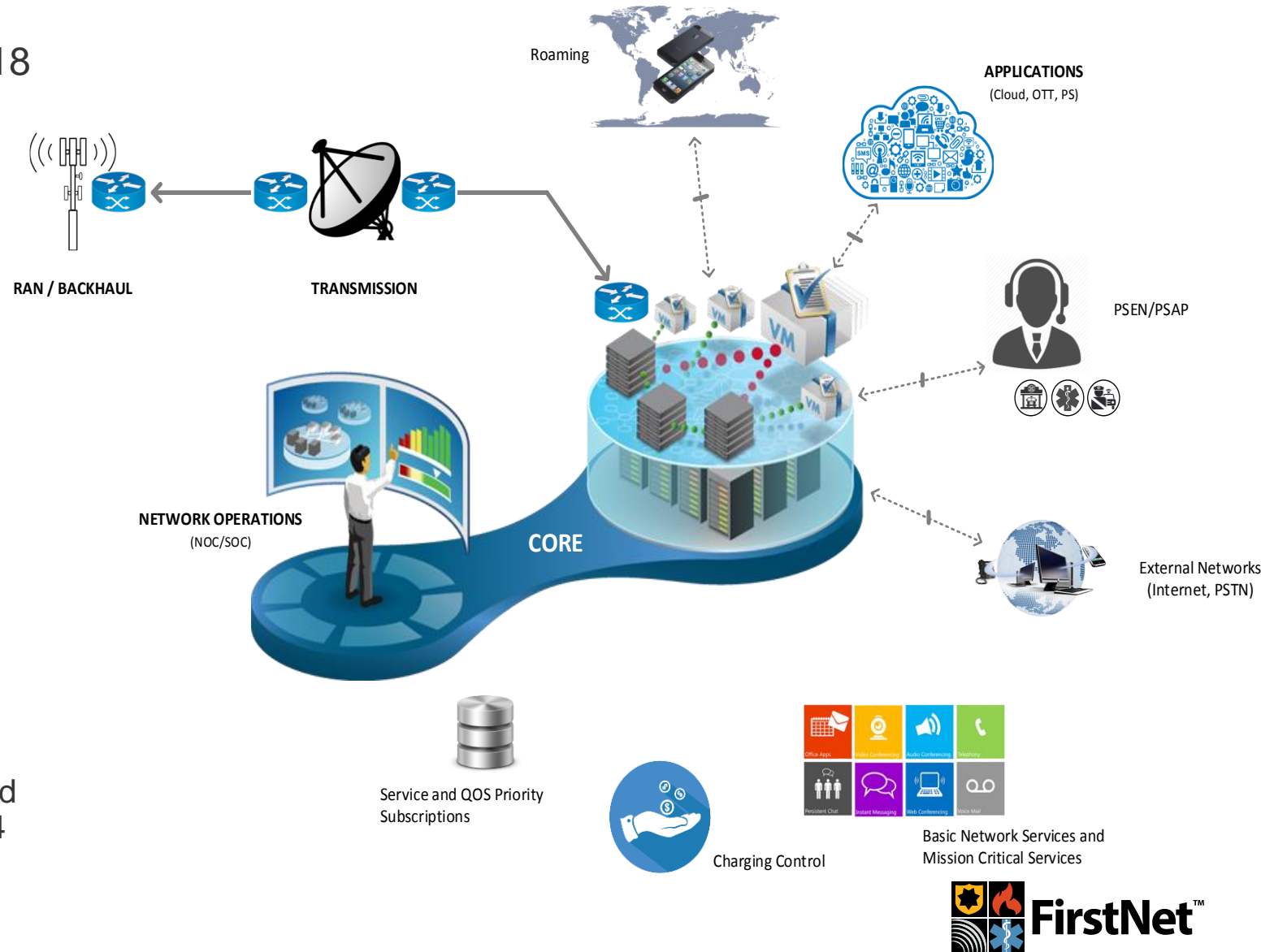
Fire Detection

Temporary Coverage

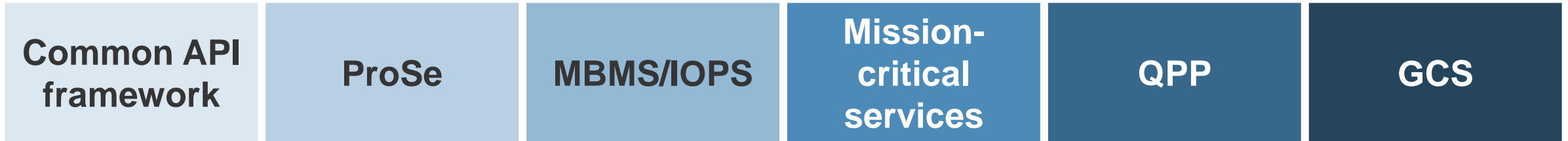
Mid-Flight Comms

Dedicated FirstNet Public Safety Core Network

- FirstNet Core fully implemented March 2018 (IOC-2)
- Based on standardized Evolved Packet Core (EPC) and IP Multimedia Subsystem (IMS)
- Dedicated core for opt-in and opt-out states/territories RANs
- FirstNet Core to provide:
 - Basic network services
 - Mission-critical services (future)
 - Secure access to private/public networks, PSEN/PSAP, enterprise and cloud applications
 - Enables full network sharing among Band 14 and AT&T commercial bands while enabling Band 14 secondary use (MOCN)
 - QoS, priority and preemption across **all** AT&T LTE bands



Standards Technology Evolution: Network Capabilities



Focus on supporting mission critical services and enablers

Services

- ❑ Mission-critical push-to-talk
- ❑ Mission-critical video
- ❑ Mission-critical data

Enablers

- ❑ Proximity services (ProSe)
- ❑ QoS, Priority and Preemption (QPP) and Dynamic Controller
- ❑ Group Communication Services
- ❑ Isolated E-UTRAN Operation for Public Safety (IOPS)
- ❑ Multimedia Broadcast Multicast Services (MBMS)
- ❑ Common API framework



Planned FirstNet Demonstrations for Board Members

- 1) Priority Services Demonstration
- 2) Current Push-to-Talk Solutions
- 3) FirstNet Application Store, Agency Home Page, and App Developer Portal
- 4) National Disaster Recovery SATCOLT - Satellite Based Cell on Light Truck
- 5) FirstNet Devices Offerings
- 6) Inmarsat Satellite Services / Devices
- 7) Applications Demonstrations
- 8) PSCR Demos: Virtual Reality and Airborne Deployable Research Platform

PSCR Innovator Accelerator Update

September 13, 2017



2017

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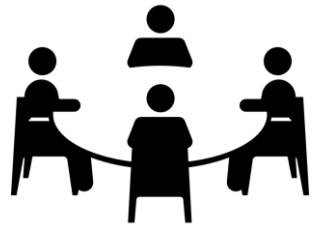
PSCR Innovation Accelerator Program

- Section 6303 of the Middle Class Tax Relief and Job Creation Act of 2012 provides \$300M to NIST to perform R&D critical to the success of a dedicated, nationwide LTE broadband network (FirstNet). NIST will focus the funding provided from the Public Safety Trust Fund on the following critical areas:
 - Development of broadband requirements, standards, technologies, and applications for public safety, including:
 - Mission Critical Voice over LTE
 - Land Mobile Radio (LMR) to LTE integration and eventual migration
 - Addressing R&D necessary for critical features identified by public safety entities beyond current generation of broadband technology
 - Launch an open innovation program, consisting of contract awards, grants, and competitive research funding and prizes to address some of the highest priority public safety R&D needs

PSCR R&D Planning and Roadmapping

- In November 2013, PSCR hosted a 3-day Public Safety Broadband R&D Roadmap Workshop that brought together 150 representatives from industry, public safety, academia, and State/Local/Federal government
- The workshop successfully identified needs for public safety broadband R&D in the near-term (2+ years) and longer term (5-10+ years)
- A number of critical needs were identified including:
 - Location-based Services
 - Data Analytics
 - Enhanced User Interfaces

PSCR Roadmap Process



Roadmap
Working
Group

Roadmap
Publication

Roadmap
Summit

Summit
Report

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2017 PSCR Stakeholder Engagements

Completed Stakeholder Engagement:

- Enhanced User Interface Technology Roadmap finalized on January 31, 2017
- MCV Roundtable – March 9, 2017
- Public Safety Broadband Stakeholder Meeting - June 13-15, 2017
- Next Generation Deployable Systems Roundtable - July 13-14, 2017
- UI Summit – July 18-19, 2017

Upcoming Stakeholder Engagement:

- Next Generation Deployable Systems Summit – October 18-19, 2017
- Building the PSCR Security Community
 - Security Virtual Roundtable – November, 2017

PSCR Internal Initiatives

- **MCV:**
 - Mouth to Ear Latency (CTL)
 - Evaluate the performance of LTE device-to-device services (i.e. discovery and communication) and develop guidelines to support mission critical applications such as MCPTT (CTL)
- **Security:**
 - Mobile Single Sign On (SSO) for Public Safety (ITL)
- **UI:**
 - VR/AR virtual test environment (CTL)
 - Identifying Communications and Data Needs from Station to Scene (ITL)
- **LBS:**
 - Indoor Localization for First Responders (PML)
 - Creating an indoor localization and tracking system test and evaluation consortium (ITL)



2017

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Prizes & Challenges



VR/AR Ideation Prize Competition



- Contest was open for 64 days
- 703 people indicated interest via HeroX online community
- 103 competitors registered
- 21 total entries
- 793 votes cast during public voting
- **5 Winners totaling \$50,000 and one Honorable Mention Prize**

Tongal Video Challenge

Inspire Americans everywhere to help develop the Public Safety communications technology of tomorrow with a Video series about the Public Safety Prizes Crowdsourcing Competitions being launched by NIST and the Open Innovation Accelerator.

- Evaluating Concepts beginning on August 28, 2017
- Includes a Pitch, Pre-Production, Video, and Revision phase
- Winning Video Selected on December 13, 2017



Data Deidentification Prize Challenge

Problem:

- As Public Safety moves towards advanced analytics, the sharing of data sets will become more common – necessitating the ability to properly de-identify data sets with tested, validated, high-speed algorithms to ensure the protection of Personally Identifiable Information (PII) for both Public Safety personnel and the community.

State of the Art:

- Given a data set containing private information, the Multiplicative Weights and Exponential Mechanism (MWEM) algorithm can be used to create a synthetic data set that closely models the statistical properties of the original data set while maintaining a formal privacy guarantee. However, the performance of MWEM is currently insufficient for practical applications. It will be used as a baseline for the challenge.

LBS Grand Challenge

Challenge Goal:

- Design and execute a grand challenge to rapidly accelerate technologies in the fields of indoor mapping, localization and tracking, and navigation to meet the extremely challenging requirements of first responders.

Timing:

- RFP for vendor to assist in design and execution will be released Fall 2017
- Anticipate announcing Grand Challenge Spring/Summer 2018
- Several phases of competition with final phase to be held in April 2020



2017

FIRSTNET TECHNOLOGY
COMMITTEE MEETING

PSCR Grant Update



2017 PSIAP Grant Program

- In December 2016 PSCR released a Notice of Federal Funding Opportunity that covers a broad range of research and development objectives across many technical areas
- Grants are for research, advanced engineering, and product development
- The Notice of Funding Opportunities identified the following focus areas that will drive R&D for the Innovation Accelerator
 - Mission Critical Voice
 - Location-Based Services
 - Public Safety Analytics
 - Public Safety Communications Demand Model
 - Research & Prototyping Platforms
 - Resilient Systems

2017 PSIAP Grant Program

- PSCR received over 162 applications
- In June 2017 awards were made to 33 grant recipients, totaling more than \$36 million
 - Mission Critical Voice – 6 Grants
 - Location-Based Services – 8 Grants
 - Public Safety Analytics – 10 Grants
 - Research & Prototyping Platforms – 4 Grants
 - Resilient Systems – 5 Grants
- Recipients represent industry, academia, and public safety institutions/organizations

Mission Critical Voice (MCV) 2017 PSIAP Grant Awards

George Washington University – Coverage, Capacity, and Resilience Enhancement in Limited PSN

- \$700,000

Harris Corporation - ProSe

- \$200,464

Sonim Technologies, Inc. - End to End Mission Critical Push to Talk with Direct Mode Operation

- \$1,398,950

Universidad del Pays Vasco/Euskal Herriko Unibertsitatea - Mission Critical Open Platform (MCOP)

- \$1,259,142

University of Southern California - Propagation channel models and system performance for device-to-device communications for public safety applications

- \$449,101

Vencore Labs, Inc. dba Applied Communications Science - Device-to-Device System for Public Safety (DDPS)

- \$1,962,779

Location Based Services (LBS) 2017 PSIAP Grant Awards

Carnegie Mellon University

1. An Infrastructure-Free Localization System for Firefighters

- \$782,280

2. Hyper-Reality Helmet for Mapping and Visualizing Public SafetyData

- \$642,039

Chancellor, Masters and Scholars of the University of Oxford – Pervasive, Accurate and Reliable

Location Based Services for Emergency Responders

- \$1,182,903

Massachusetts Institute of Technology – Situational Awareness for Emergencies Through Network-

Enabled Technologies (Safe T-Net)

- \$799,000

Location Based Services (LBS) 2017 PSIAP Grant Awards

TRX Systems, Inc. – TRX First Responder Location and Mapping Services

- \$1,414,606

University of California, Irvine – Ultimate Navigation Chip (uNavChip): Chip-Scale Personal Navigation System Integrating Deterministic Localization and Probabilistic Signals of Opportunity

- \$1,960,613

University of Cincinnati – First Responder Indoor Location Using LTE Direct Mode Operations

- \$398,869

University of Michigan – Decimeter Accurate, Long Range Non-Line-of-Sight RF Localization Solution for Public Safety Applications

- \$997,873

Public Safety Analytics (PSA) 2017 PSIAP Grant Awards

Carnegie Mellon University – Real-Time Video Analytics for Situational Awareness

- \$1,800,000

New Jersey Office of Homeland Security and Preparedness – Fiscal Year 2017 Public Safety Innovation Acceleration Program

- \$1,701,657

Prominent Edge LLC – StatEngine: A real-time open source data analytics and visualization platform for Public Safety

- \$500,218

Southern Methodist University – SAFE-NET: An Integrated Connected Vehicle and Computing Platform for Public Safety Applications

- \$1,334,852

University of Cincinnati – Information-Driven Video Communication for Public Safety Networks

- \$500,364

Public Safety Analytics (PSA) 2017 PSIAP Grant Awards

University of Houston – Multi-tiered Video Analytics for Abnormality Detection and Alerting to Improve Response Time for First Responders Communications and Operations

- \$1,577,626

University of Michigan – Body-Worn Camera Analytics (BOCA) in Public Safety

- \$688,938

University of Virginia – Towards Cognitive Assistant Systems for Emergency Response

- \$1,119,854

Voxel51 LLC – ETA: Extensible Tools for Analytics in Public Safety

- \$1,241,189

Western Fire Chiefs Association, Inc. – Creation of a Unified Analysis Framework and the Data Comparison Center

- \$1,741,548

Research and Prototyping Platforms (RPP) 2017 PSIAP Grant Awards

New York University – End-to-End Research Platform for Public Safety Millimeter Wave Communications

- \$2,265,051

Software Radio Systems Limited – OpenFirst

- \$1,453,100

University of Colorado – SDR LTE Network Testbed and RESPONS

- \$1,502,795

University of Washington – Modeling, Simulation and Performance Evaluation for Future Public Safety Networks

- \$1,000,000

Resilient Systems Prototyping (RS) 2017 PSIAP Grant Awards

Cornell University – Towards an Emergency Edge Supercloud

- \$1,241,825

Michigan Technological University – Resilient Systems Solutions for Data Sharing for Wildland Fire Incident Operations

- \$1,007,049

Misram LLC dba Spectronn – Heterogeneous Fog Communications and Computing for Resilience

- \$649,984

University of California – Modeling and Development of Resilient Communications for First Responders in Disaster Management

- \$1,223,527

Texas A&M Engineering Experiments Station – DistressNet-NG: Resilient Mobile Broadband Communication and Edge Computing for FirstNet

- \$1,800,000

Upcoming Grants - 2017-2018

- **VR/AR Grant**
 - AR/VR Technology Development and Prototyping
 - Research Effectiveness and Transferability of AR/VR Simulations
- **MCV**
 - Measure human subjective task and job performance when measurable MCPTT performance (including voice intelligibility, access time, access success rate, etc.) are varied
- **LBS**
 - Provide funds to create a 'model city' (Indoor City) demonstrating the value of generating an extensive catalog of indoor 3D point-clouds for mapping, localization, and navigation. Recipients will also be required to participate in the NIST Global Cities Team Challenge community as the lead city for an Action Cluster.



2017

FIRSTNET TECHNOLOGY
COMMITTEE MEETING

PSCR 2018 Stakeholder Conference Update



PSCR 2018 Stakeholder Conference Update

- Location: San Diego Convention Center
- Date: June 5 - 8, 2018
- New Meeting Structure
 - Multiple Tracks
 - Significant participation from Grantees and Prize Winners
- 3 Possible Prize Challenges:
 - Drone Load Lifting for LTE Systems
 - Security Hack a (wearable, ota, mobile app)
 - UI for In Building Navigation
- MOU with PSCR, FirstNet, and AT&T in review



Questions?



2017

FIRSTNET TECHNOLOGY
COMMITTEE MEETING



VR/AR Ideation Prize Competition



1st Place \$20,000

FirstSimVR: Measuring Future Tools Using Today's VR

- NextGen Interactions, Chapel Hill, NC



2nd Place \$12,000

Reconfigurable Vehicle Training System

- Design Interactive, Orlando, FL and Williamsburg, VA



3rd Place \$8,000

MultiVRse: Parallel Physical and VR Universes

- UNSN

VR/AR Ideation Prize Competition



4th Place \$5,000

Augmented Reality
Emergency Response
System

- Cosumnes Community
Services District, Elk
Grove, CA



Popular Vote \$5,000

The Future is Hidden in
the Success of the Past

-Variable Labs Team,
Oakland, CA



Honorable Mention

PerSim Team: Realistic,
Portable, Low Cost
Simulation

- MedCognition, San
Antonio, TX