



FirstNet™



Technology Update

Jeff Bratcher
Chief Technical Officer

October 1, 2015

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Since the last Technical Committee briefing in June:

Director of Standards

Dean Prochaska

EOD: July 12

Dean's Standards Career Highlights:

- National Coordinator for Smart Grid Conformance, Smart Grid and Cyber Physical Systems at NIST
- 20+ years' experience in the telecommunications industry
- Director of Global Technology Standards for Sprint's wireless and wireline businesses
- Numerous positions on formal Standards Boards

CTO Federal Staff Facts (23 Onboard or w/start dates)

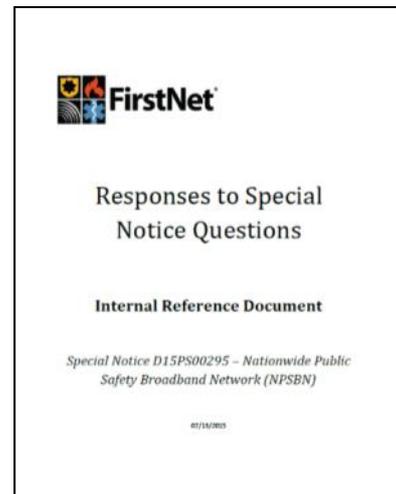
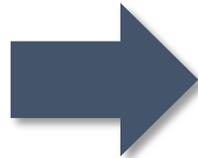
- 90% have significant (+5 years) or exclusively private-sector/wireless industry experience
- 22% are military vets representing nearly all branches of service
- 2 have direct public safety experience
- Technical headquarters in Boulder, CO established in March 2014
- Facility is 28,614 sqft; office (~14.5K sqft), warehouse (~10K sqft), and lab (~4k sqft)



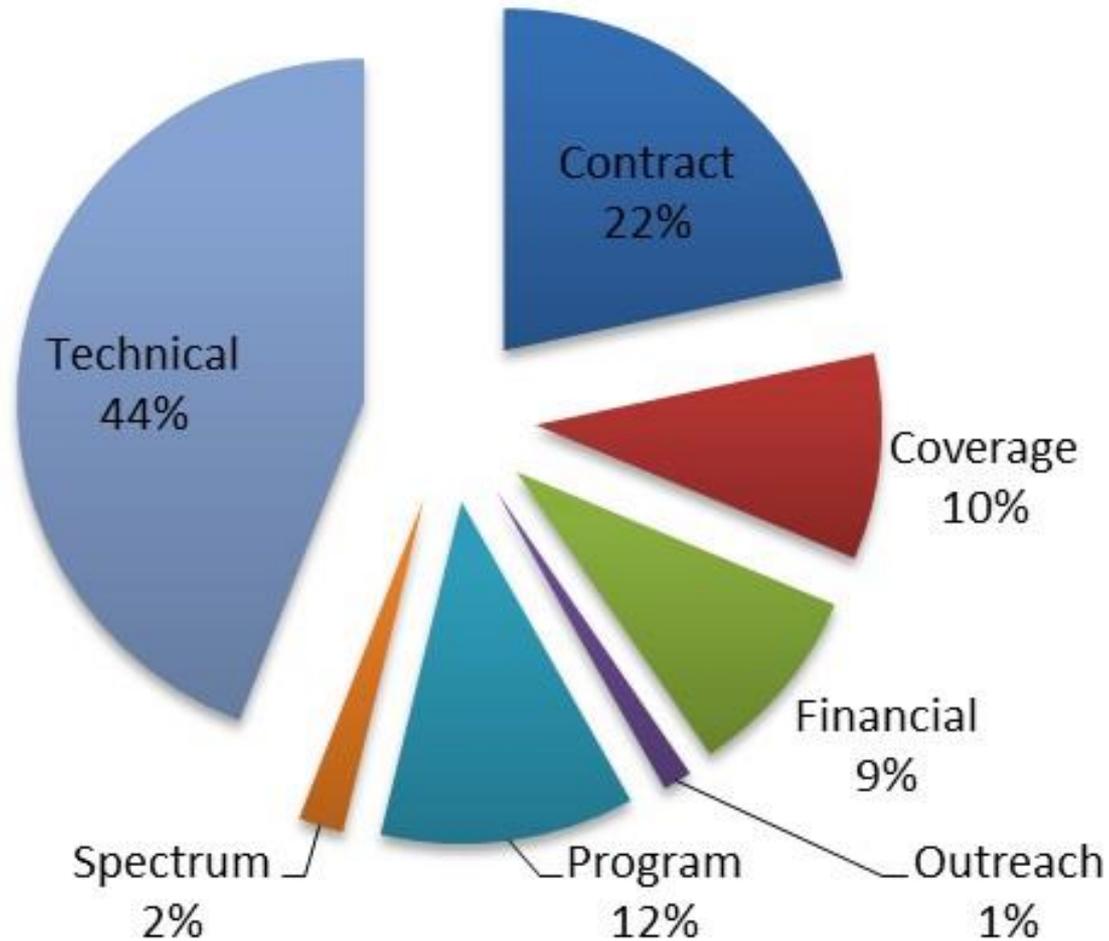
Questions & Answer Process and Outcomes



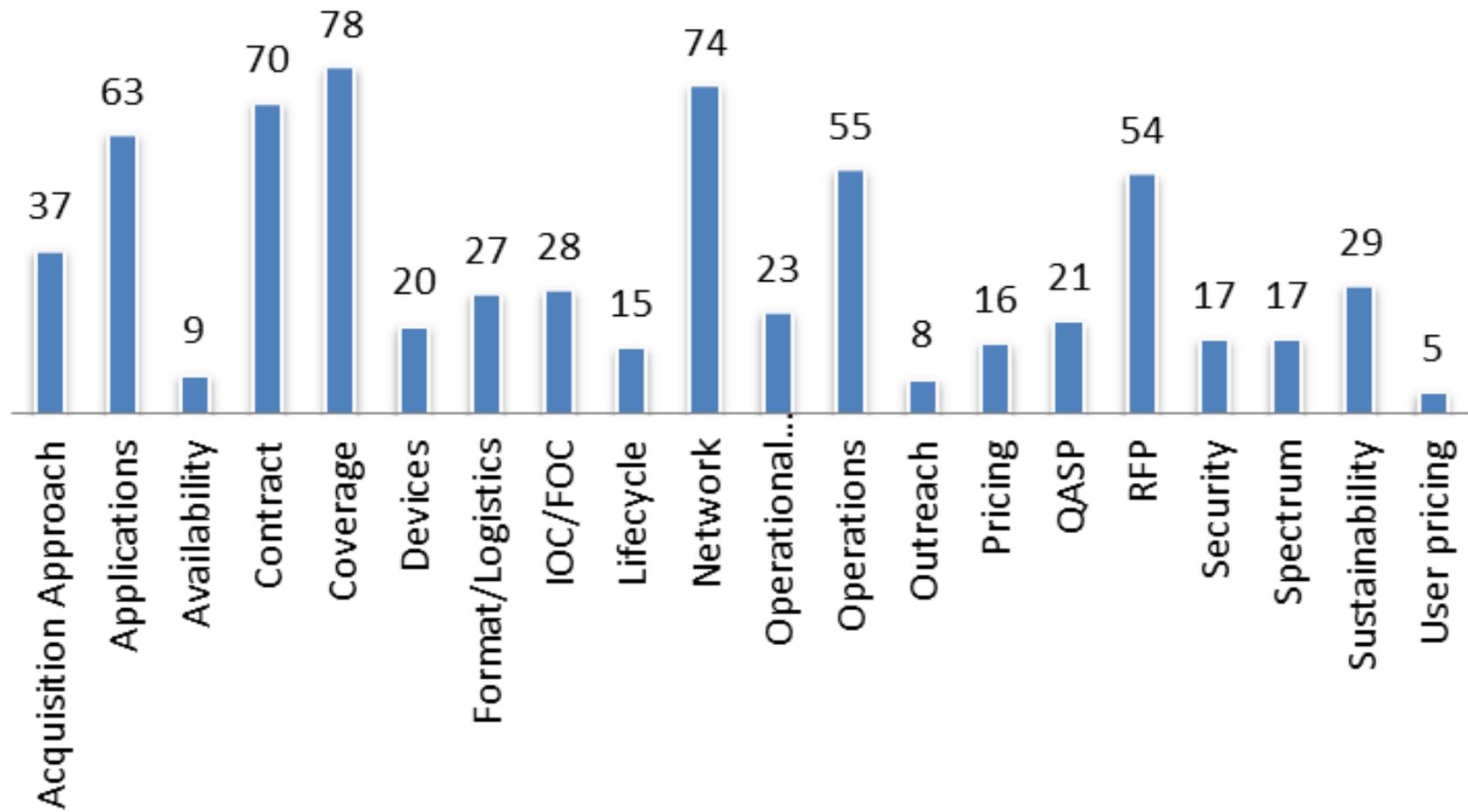
- 650+ questions submitted to FirstNet
- Responses posted by 1 July at www.fbo.gov
- FirstNet continues to analyze for lessons learned, outcomes, and key metrics



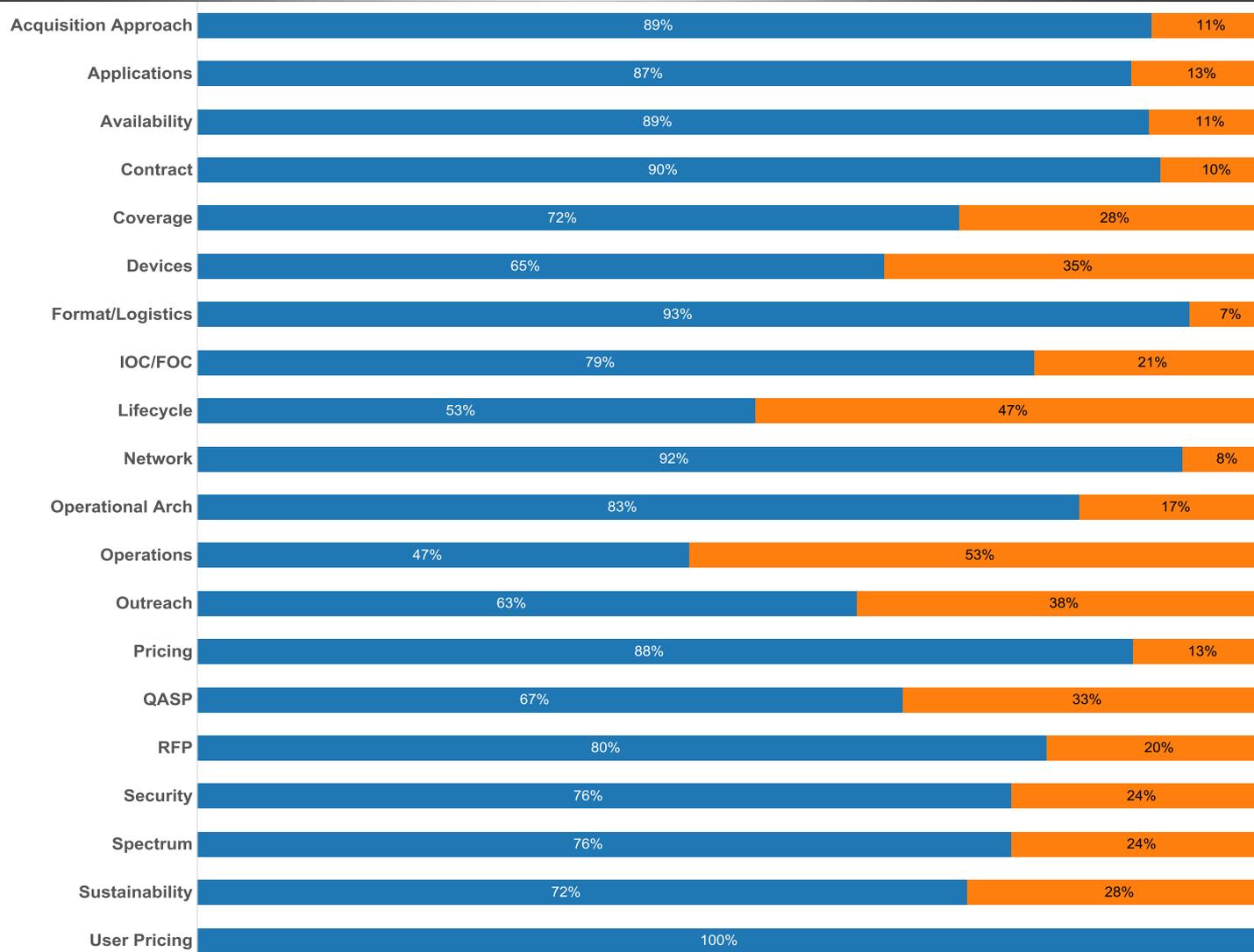
Questions by Area



Questions by Area



Special Notice Questions by Topic and Source



Source
■ States
■ Industry

- Briefings held Sep. 9th at FirstNet Boulder and PSCR Lab



Early Builder Projects



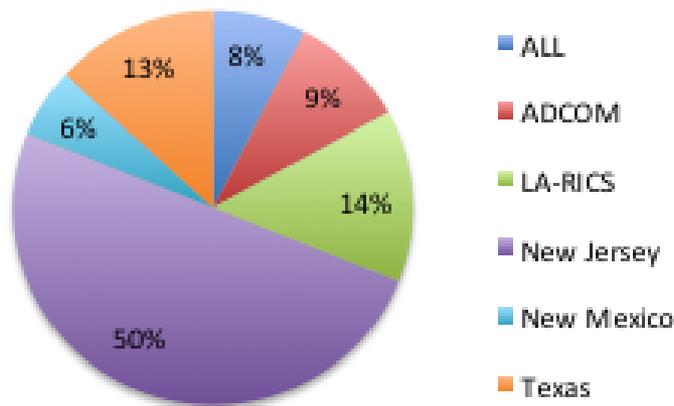
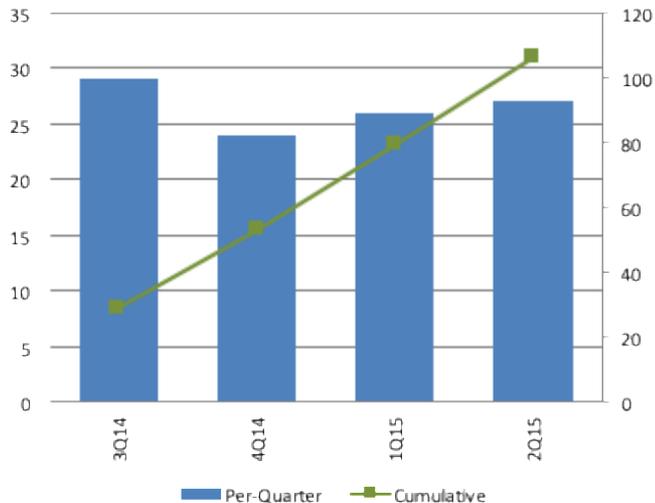
SMLA: Spectrum Manager Lease Agreement
KLCP: Key Learning Conditions Plan

Project	SMLA	KLCP	Sites	Primary Focus Areas / Key Learning Conditions	On-Air
1. LA-RICS	Yes	Yes	77	Secondary responders partnerships, Quality of Service, priority/pre-emption	3Q15
2. NM	Yes	Yes	7	Hosted core, int'l border spectrum management, Federal partnerships	Now*
3. NJ	Yes	Yes	29	Deployable assets, Disaster Recovery, training exercises, Network Operations Center notification	Now*
4. ADCOM	Yes	Yes	20	Public Safety Communications Research program/FirstNet test support, Band Class 14 device testing, demonstration access	Now
5. TX	Yes	Yes	93	Core migration, data analytics, rural coverage, special events, LTE training	Now

Early Builder Informal Key Lessons Learned



Informal Key Lessons



- Surpassed 100 IKLs logged during second quarter
 - 106 cumulative
- New Jersey and Texas continue to provide the widest breadth and quantity of IKLs
- LA continues to provide IKLs focused on use of public safety assets
- Team expects volume of informal IKLs to reduce as focus shifts to formal KLC execution

- NIST R&D Funding - Public Law 112-96: \$100-\$300M
Focus on stakeholder driven R&D Roadmap areas:
 - Development of broadband requirements, standards, technologies, and applications for public safety:
 - Mission Critical Voice over LTE
 - Land Mobile Radio (LMR) to LTE integration
 - Addressing R&D necessary for critical features identified by public safety beyond current generation of broadband technology:
 - Location-Based Services (Summit to be held on Oct. 21-22 @ NIST)
 - Data Analytics
 - Device Usability/User Interface

Standards Development



Proximity Services

Release 12 & 13
(PROSE)

Group Communications

Release 12 & 13
(GCSE)

Mission Critical Push-to-Talk standards also supported by the United Kingdom, South Korea, Australia, Canada, France, Germany, and the Netherlands.

Mission Critical Push-To-Talk

Release 13
(MCPTT)



Release 12
Frozen

Stage 1 Freeze –
June 2013

Stage 2 Freeze –
March 2014

Stage 3 Freeze –
March 2015

Release 13
Start

Stage 1 Freeze
December 2014

Stage 2 Freeze –
June 2015

Stage 3 Freeze –
March 2016

Release 14
Start

Stage 1 Freeze –
June 2016
(Tent.)

PSCR Testing and Evaluation

Recent Focus Areas



Identify Standard Tools

Cell

AC Barring

User/Device

Access Class

Establishment Cause

ARP

Pre-Emption

Application

Bearer Admission

Bearer Modification

QoS

Vendor Discussions

Road Maps

Features

Releases

Deep Dives

Admission Control

Auto-ACB

Functional Evaluation

Limits

Max Users

Max Bearers

Max Throughput

Scenarios

Ramp Up

Saturation

Overload*

Triggers

PSCR Testing and Evaluation

Current Priority Tasks



Core Networks

- Local QPP
- Dynamic QPP
- End-to-End QPP

Devices

- Mobile Device Secure Container Technology
- MCU (Satellite Focus)
- Inter-Network Mobility

Applications

- Security Validation Tools and Methods (Static and Dynamic)
- Federated Identify Management, Trust Frameworks, ABAC

RAN

- RF Measurements

Early Goal: Rapid Transfer of information in key task areas.





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User Advocacy Update

Amanda Hilliard
Director of Outreach

David Buchanan
Director of State Consultation

October 1, 2015

Recent Stakeholder Events



Executed well attended stakeholder events this quarter

- July 9 Single Point of Contact (SPOC) Webinar with 78 attendees
- August 27 Industry Day with 425 attendees
- August 28 Public Safety Briefing Webinar with 120 attendees
- September 22 Public Safety Advisory Committee (PSAC) Webinar
- September 30 PSAC Executive Committee Meeting

Outcomes: Socialized, addressed questions, and obtained input on key FirstNet activities including data collection, draft RFP documents, and public notices



Recent Stakeholder Events (continued)



Board members and staff provided FirstNet updates at over 100 stakeholder events since the June 2015 Board Meeting

Fall 2015 SPOC Meeting Preview



- State and territory representatives invited
 - SPOC plus 2 additional representatives per State or Territory
 - PSAC Executive Committee
 - PSAC Tribal Working Group
- Meeting Outcomes:
 - Engage state and territory representatives who are involved in FirstNet planning
 - Fine-tune FirstNet planning activities based on input received from SPOCs
 - Share successes and lessons learned for FirstNet planning activities



Over 130 representatives from 52 states and territories have registered for the Fall 2015 SPOC Meeting

Fall 2015 SPOC Meeting Sessions



- Acquisition Updates
- State Consultation in 2016
- State Plan Process for 2016
- Data Collection and Analysis Process
- State and Location Implementation Grant Program Updates
- Regional Breakout Sessions
- PSAC Updates
- CTO Updates
- Early Builders Update Panel Discussion
- Education and Outreach Lessons Learned
- Metropolitan Engagement
- Tribal Engagement
- Federal Engagement
- Public Notice
- Operational Architecture Overview and Feedback
- Quality of Service, Priority and Preemption



- Executive Committee Session
- FirstNet Briefings
 - Outreach
 - Consultation
- Working Groups Review
- Task Team Deliverables Review
- New Tasking Discussion
- Board and Senior Management Meetings



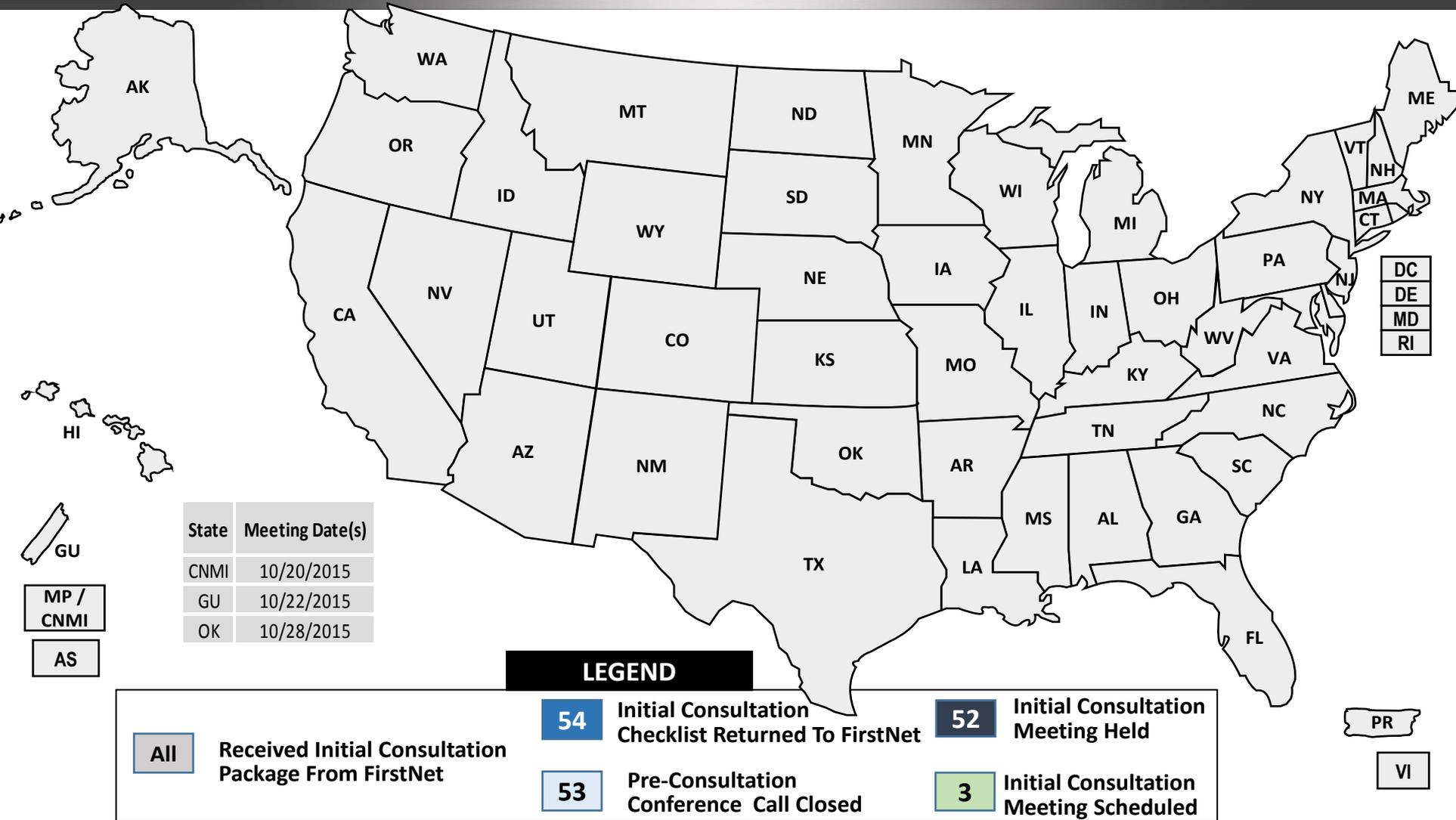
New PSAC Members



- ***Guy Cameron*** – Governors Homeland Security Advisors Council
- ***Scott Edson*** – Major Cities (Police) Chiefs Association
- ***Len Humphries*** – National Association of Counties
- ***Tony Anderson*** – National League of Cities
- ***Jeff Stern*** – National Emergency Management Association
- ***Michael Jacobson*** – National Consortium of Justice Information Statistics (SEARCH)
- ***Reid Vaughan*** – National Volunteer Fire Council
- ***Jimmy Gianato*** – National Governors Association
- ***Steve Correll*** – Nlets (The International Justice and Public Safety Network)

State Consultation Activities

As of October 1, 2015



State Consultation Activities

As of October 1, 2015



Broaden consultation and outreach efforts to:

- Obtain input from a wide range of stakeholders from local, state, tribal and federal entities to inform network planning
- Prepare Governors for state plan decision
- Prepare stakeholders for adoption and use of the FirstNet network

2016 Consultation – Focus Areas



Preparing for the NPSBN

- Network Management and Operations
- Public Safety Grade
- Priority Services
- Cyber Security
- Current Uses of Broadband in Public Safety
- Training
- Post State Plan Consultation

Planning for RAN Deployment

- Data Validation
- Coverage, including Rural and Urban
- State Planning Template, including Core and RAN

Making the FirstNet Decision

- Value of FirstNet
- FirstNet Business Model
- Opting In to the FirstNet buildout

The Value of FirstNet

- Metropolitan, Rural, and Tribal Engagement
- FirstNet Difference
- Enhancing the Customer Experience

✓ Phase 1 Launched

- **Contacts Management:** Logging contacts and ongoing communications with contact
- **Event Management:** Tracking events from initial planning through post event follow-up

Phase 2

- **Project/Task Management:** Tracking of tasking, deliverables, and events
- **Stakeholder Portals:** Providing online forum for key stakeholder groups to collaborate

CRM Screenshot



FirstNet FirstNet Contacts New Contact Search CRM data Amanda Hilliard firstnetgov

SAVE SAVE & CLOSE + NEW

CONTACT
New Contact

Owner*
Amanda Hilliard

Summary

CONTACT INFORMATION

Full Name* --
Title --
Parent Organization --
Preferred Email **Email Address 1**
Email Address 1 --
Email Address 2 --
Email Address 3 --
Preferred Phone **Work**
Cell --
Work --
Home Phone --
Fax --

POSTS ACTIVITIES NOTES ONENOTE

Enter post here POST
Both Auto posts User posts

Domain --
Biography --

Disciplines

Discipline ↑
To enable this content, create the record.

Active



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State Plan Update

Rich Reed
Director of State Planning

October 1, 2015

One Plan / Different Needs



What the Law
requires...

What the States
are looking for...



What the RFP
will produce...

What the FCC &
NTIA need ...

- **Issues to consider include:**
 - Timeline / speed
 - Development cost
 - Security
 - Vendor sensitive information / control
 - Ability to disseminate / collect feedback
 - Version / access control
 - FCC/NTIA comparison
 - Complexity / level of detail
 - Supports Governor-level decision

Considered Formats

- **Comprehensive paper plan**
- **Interactive web-based portal**
- **PowerPoint format**

ONLINE State Plan
Approach
(FirstNet Leadership)



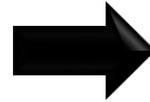
Analyzing Info from
Initial Consultation
(52 Complete as of Sept 30)



Data Collection /
Analysis
(Sept 30 Due Date)



CTO/UA
State Plan Elements
(Sept 15-16 Meeting)



NTIA / FCC
Alternate Plan Approach
(Weekly Meeting)



State Plan Elements

- State Consultation
- Federal Input
- State Radio Access Network (RAN) Plan
- Public Safety Grade Recommendations
- Users
- Network Operator/User Training Requirements
- State Decision Process/Requirements /Timeline
- FirstNet Nationwide Design
- Device Strategy, Roadmap, and Support
- Applications
- Network Operations
- Deployable(s) approach
- In-Building approach
- Financials (cost to build, user fees)

State Plan – Bringing Everything Together

