



FirstNet and NG9-1-1

Operational Issues for Public Safety and Industry

FirstNet and NG9-1-1: Operational Impacts for PS and Industry

- **Introductions**
 - Who's Here?
- **Overview of NG9-1-1**
 - Pulse Check
- **Overview of FirstNet**
 - Pulse Check
- **A Case Study Comparison**
 - The Scenario of Today v. Tomorrow
- **Next Steps**
 - Emerging Technologies
 - Transition Considerations
 - Policy Considerations
- **Panel / Audience Q&A**



FirstNet and NG9-1-1: Who's Here?

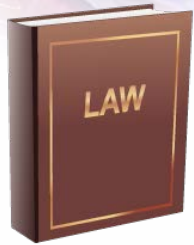
Panel Speakers



Audience



FirstNet and NG9-1-1: FirstNet Overview



THE LAW

2.22.12

FirstNet becomes law
PL 112-96

FUNDING



\$7B authorized to build the FirstNet network. Funded by spectrum auctions through 2022.

GOVERNANCE



The FirstNet Board has **15** members, including those with telecommunications and public safety backgrounds

Each Governor appoints **1** Single Point of Contact (SPOC) and governing body to represent the state's interests to FirstNet.

40 member Public Safety Advisory Committee (PSAC) advises FirstNet on public safety intergovernmental matters.

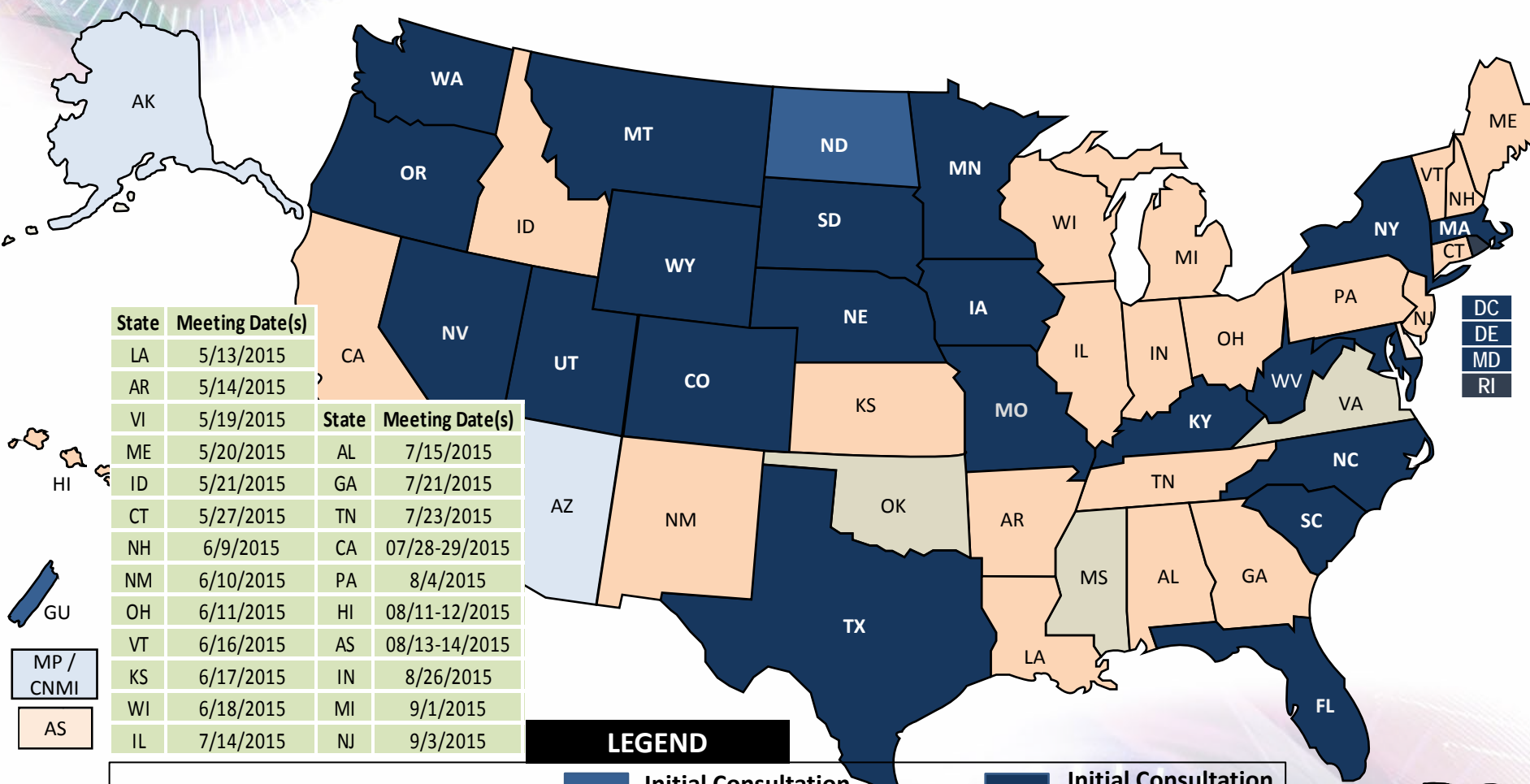


BAND CLASS (BC) 14

20MHz of bandwidth has been dedicated to public safety in the prime upper **700MHz** frequency range.

BC 12	BC 29	BC 12	BC 13	BC 14	LMR	BC 13	BC 14	LMR
T-Mobile AT&T Verizon US Cellular CDTMOBILE UL 6 MHz	AT&T Dish ULINK 12 MHz	T-Mobile AT&T Verizon US Cellular CDTMOBILE DL 6 MHz	Verizon DOWNLINK 11 MHz	PS Broadband FirstNet DOWNLINK 10 MHz	PS Narrowband 6 MHz	Verizon UPLINK 11 MHz	PS Broadband FirstNet UPLINK 10 MHz	PS Narrowband 6 MHz
1 MHz Guard Bands								

FirstNet and NG9-1-1: FirstNet Consultations



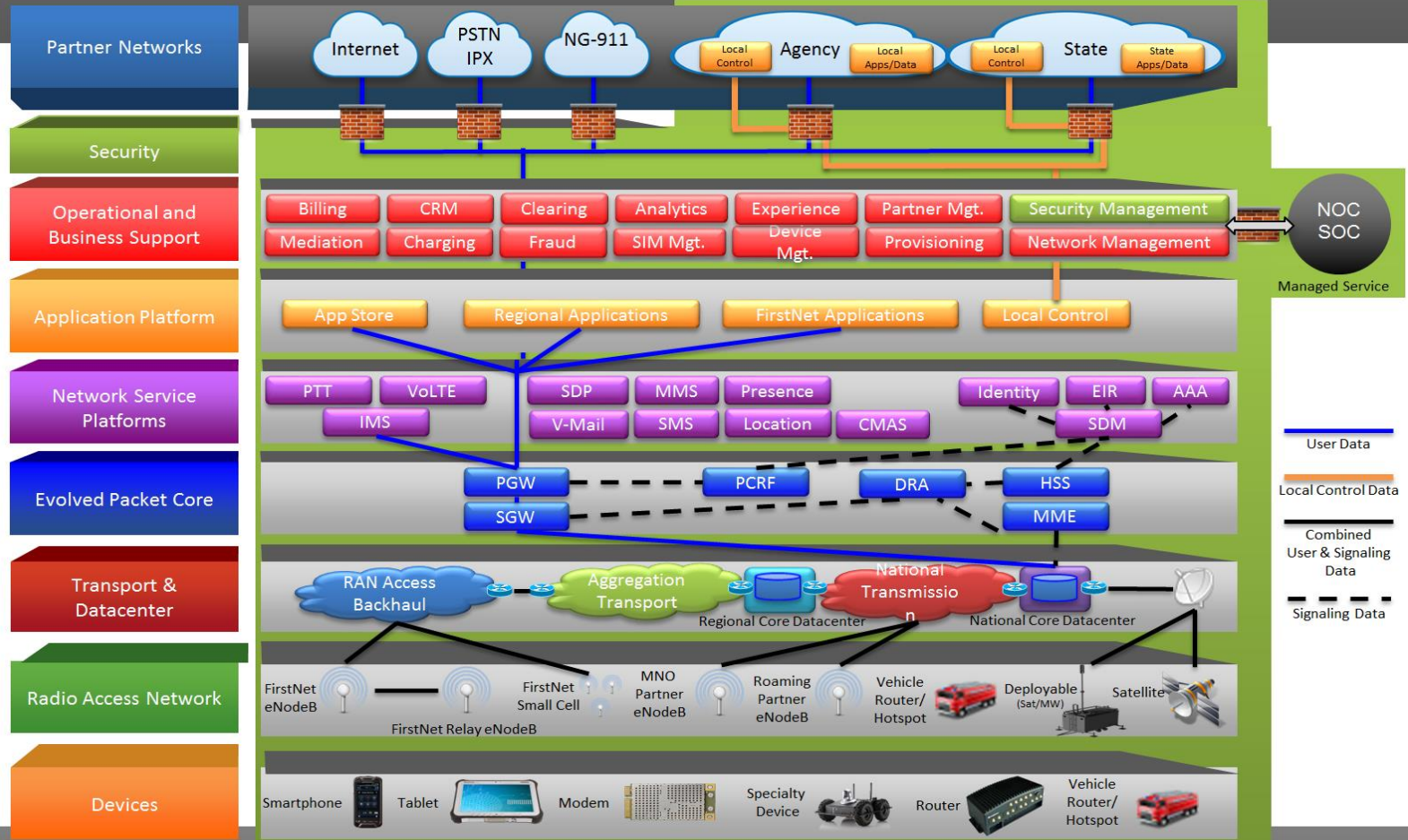
State	Meeting Date(s)	State	Meeting Date(s)
LA	5/13/2015	AL	7/15/2015
AR	5/14/2015	GA	7/21/2015
VI	5/19/2015	TN	7/23/2015
ME	5/20/2015	CA	07/28-29/2015
ID	5/21/2015	PA	8/4/2015
CT	5/27/2015	HI	08/11-12/2015
NH	6/9/2015	AS	08/13-14/2015
NM	6/10/2015	IN	8/26/2015
OH	6/11/2015	MI	9/1/2015
VT	6/16/2015	NJ	9/3/2015
KS	6/17/2015		
WI	6/18/2015		
IL	7/14/2015		

LEGEND

All Received Initial Consultation Package From FirstNet	50 Initial Consultation Checklist Returned To FirstNet	25 Initial Consultation Meeting Held
53 Pre-Consultation Conference Call Closed	23 Initial Consultation Meeting Scheduled	

FirstNet and NG9-1-1: FirstNet Overview

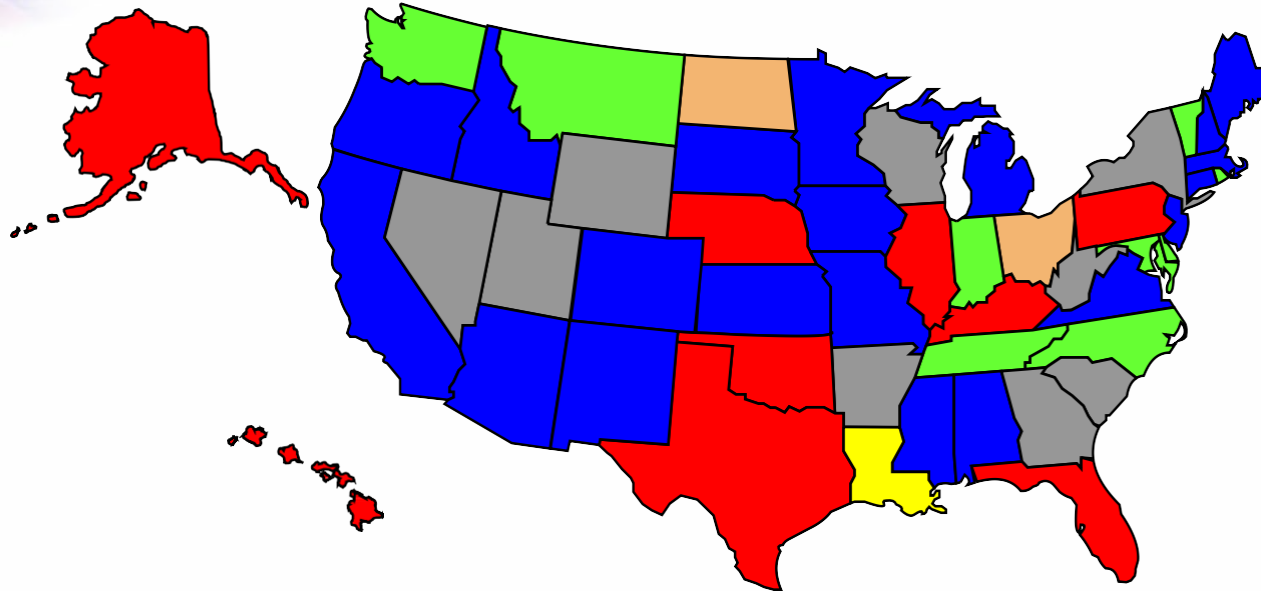
FirstNet Network Architecture



FirstNet and NG9-1-1: 9-1-1 Today & Tomorrow

Today's 9-1-1	Next Generation 9-1-1
Virtually all calls are voice callers via telephones over analog lines.	Voice, text, or video information, from many types of communication devices, sent over IP networks
Data transferred via voice	Advanced data sharing is automatically performed
Callers manually routed through legacy selective routers, limited forwarding / backup ability	Physical location of PSAP becomes immaterial, callers routed automatically based on geographic location, enhanced backup abilities
Limited ability to handle overflow situations, callers could receive a busy signal	PSAPs able to control call congestion treatment, including dynamically rerouting callers

FirstNet and NG9-1-1: NG9-1-1 Progress

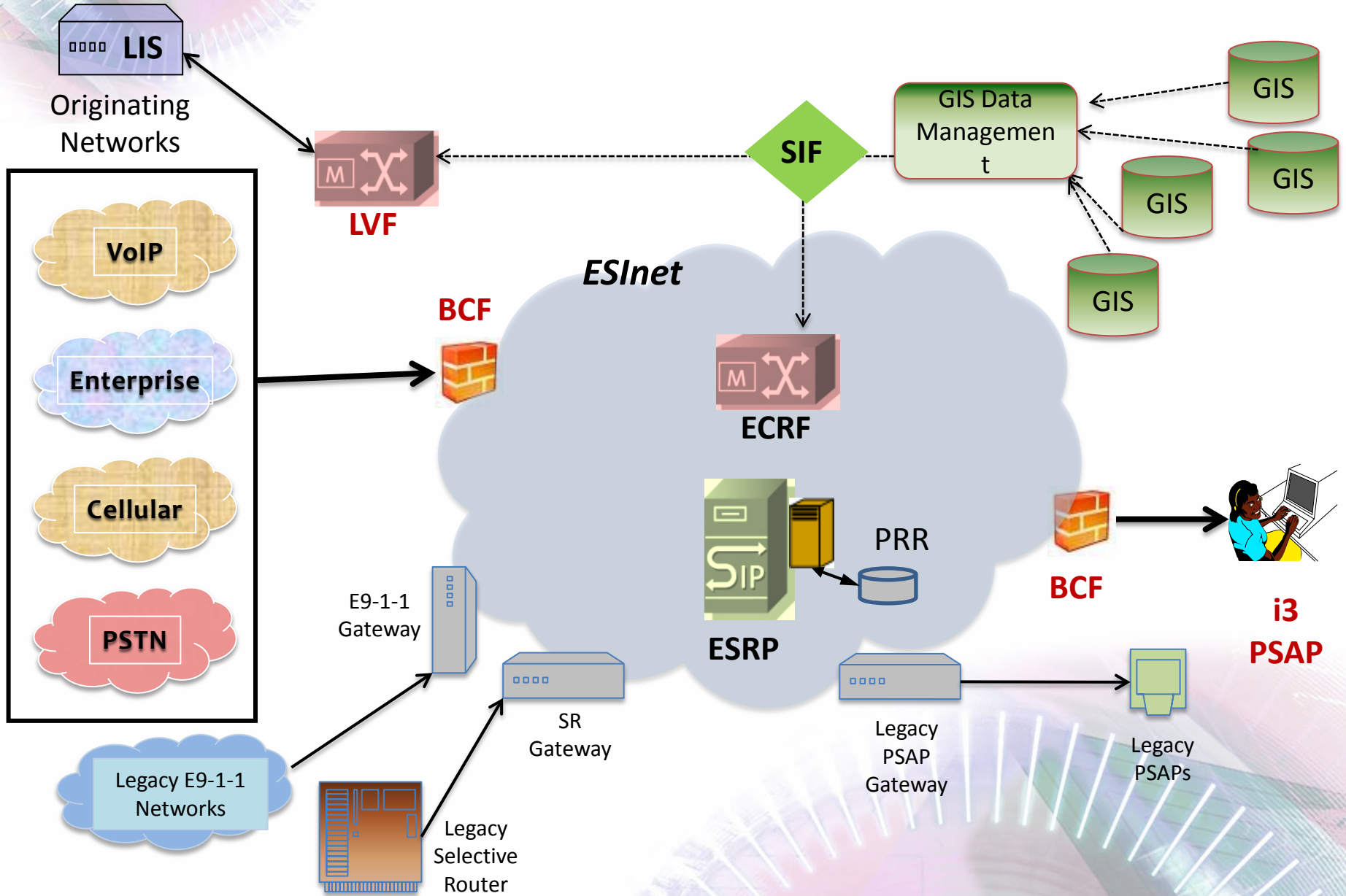


IP Network Available at State Level
IP Network Available at Sub-State Level
NG9-1-1 Planning Started
NG9-1-1 Preparation Activity at State Level
NG9-1-1 Preparation Activity at Sub-State Level
NG9-1-1 Implementation in Progress at State Level
NG9-1-1 Implementation in Progress at Sub-State Level

FirstNet and NG9-1-1: Shared Goal

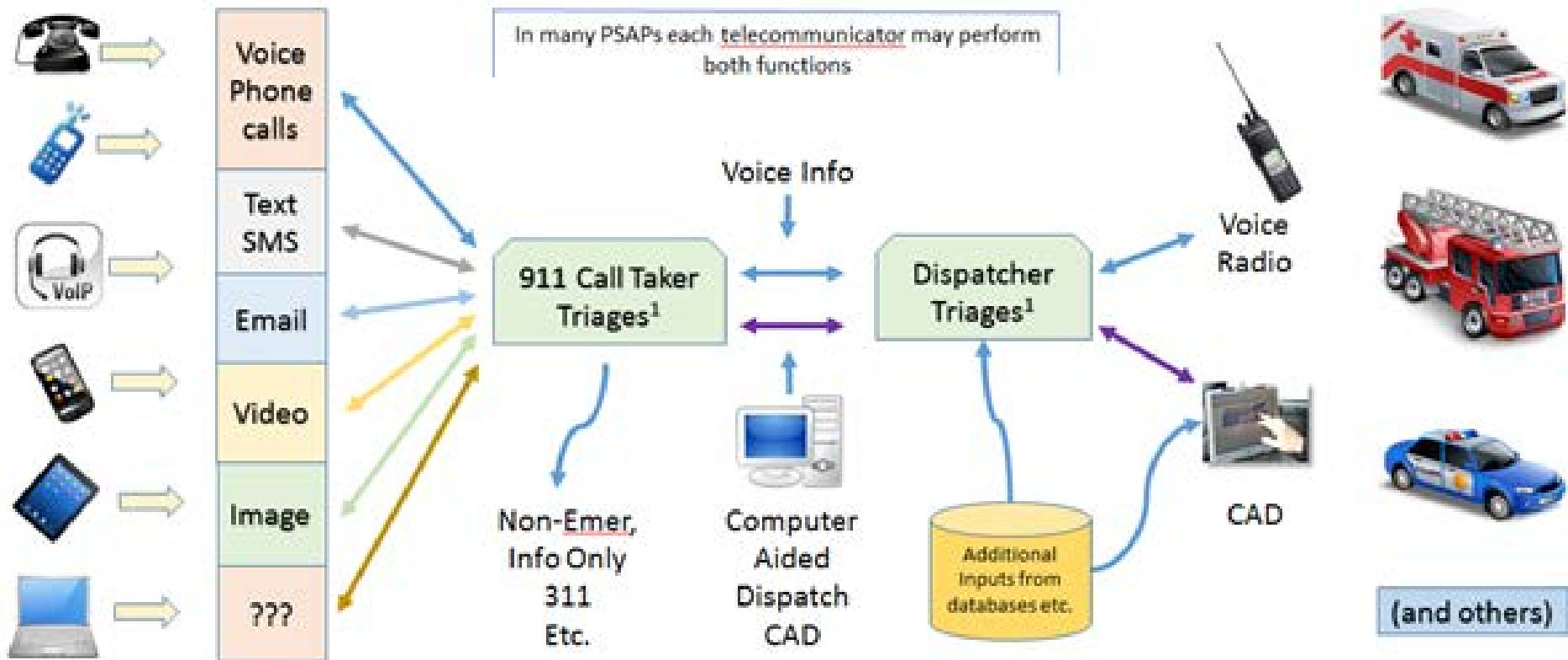
- **Technology Modernization**: Both represent efforts to update voice centric legacy systems to IP based architecture to allow telecommunicators and first responders to leverage information in multiple media formats
- **National Focus**: Both aim for broadband connectivity in urban, rural, remote communities
- **Improved Emergency Response**: Both seek to enhance communications and coordination of responses to requests for public safety assistance
- **Planning & Governance**: Both require planning and governance to ensure successful deployments

FirstNet and NG9-1-1: NG9-1-1 Overview

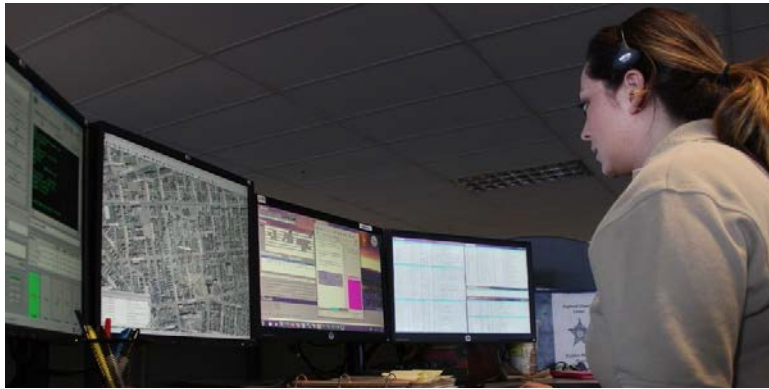


FirstNet and NG9-1-1: NG9-1-1 Overview

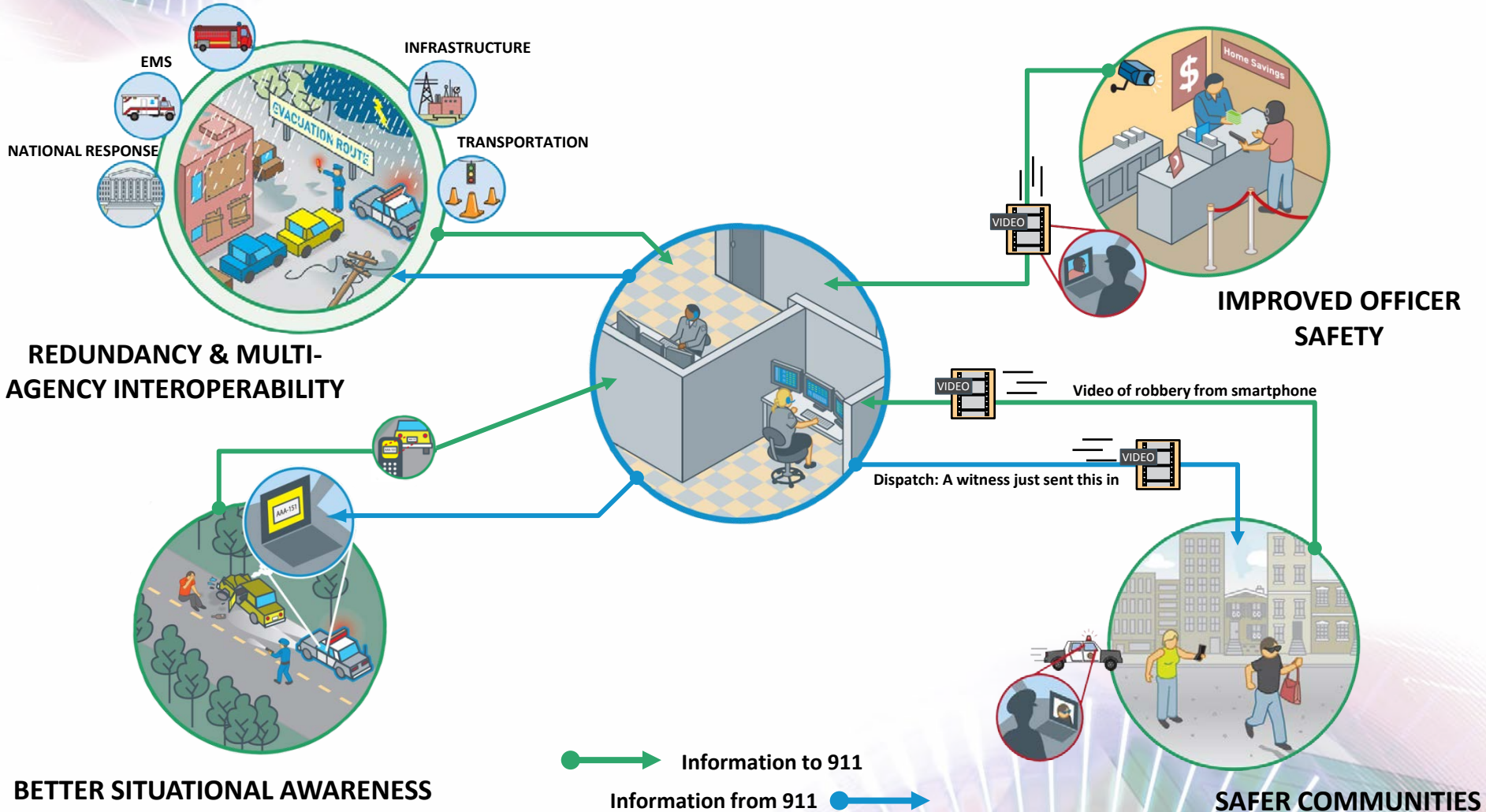
NG 911 Processing



FirstNet and NG9-1-1: Processing the Data

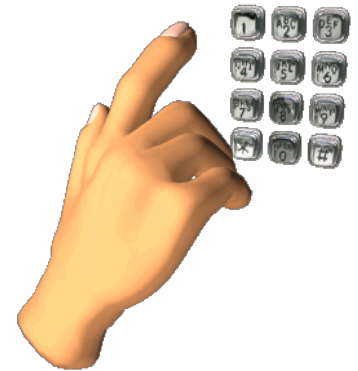


FirstNet and NG9-1-1: Continuum of the Response



FirstNet and NG9-1-1: A Case Study Comparison

Today's 9-1-1 System





FirstNet and NG9-1-1: A Glimpse of the Future

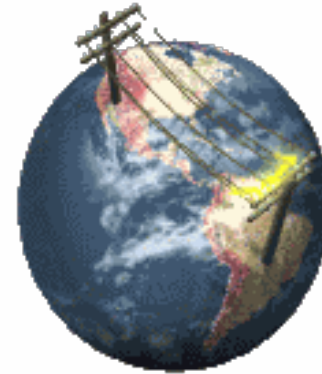


FirstNet and NG9-1-1: Next Steps

Operational Requirements

Architectural Operations Components

- Activities
- Systems
- Network Resources to:
 - Manage
 - Protect
 - Administer
 - Operate



...the technology infrastructure supporting the PS agency's mission.

Operational Requirements represent some of the primary elements that FirstNet and NG9-1-1 must support in order to advance the level of efficiency, collaboration, and coordination among the 9-1-1 community to the next generation of Public Safety communications in the US.

Next Steps: Emerging Technologies

Consider Emerging Technologies (Near Term – Mid-term – Long-term)

➤ **ESINet**

- NG9-1-1 Telephony & Applications (Text-to-9-1-1; Photos; Video; Mobile)
- Radio Communications

➤ **FirstNet**

- LTE Technology (4G, VoLTE)

➤ **Network / Cyber Security – Privacy – Accuracy**

➤ **Geographic Information System (GIS) Services**

- Mapping / Location-based Services (AVL) / Video

➤ **Subsystem Integrations**

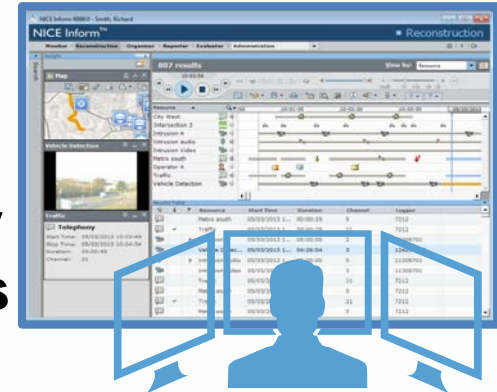
- Computer Aided Dispatch (CAD); Records Management System (RMS)
- Customer Premise Equipment (CPE)
- Paging / Notification Systems

➤ **Other Networks**

- Airports; Seaport; Secondary Responders; Regional

➤ **Regulatory Climate / Statutory Issues**

- SLAs; Maintenance; Local, State, Federal; Privacy; Security; Usage.



Next Steps: Transition Considerations

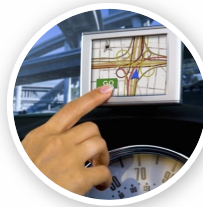
➤ Transition to Systems Leveraging New Technologies

- ESInet / FirstNet
- GIS Conversion (MSAG)
- Transition Issues
 - Costs
 - Governance
 - Responsibilities
 - Benefits



➤ Implementation Plan

- Needs / Requirements
- Options and Considerations



➤ Strategies for Full Functionality

- 9-1-1 / FirstNet System Implementation
- Subsystem Implementation.

Next Steps: Policy Considerations



“The Next Generation Command Center”

- The need for coordination
- Defining roles and responsibilities
- Jurisdictional impacts to implementing FirstNet / NG9-1-1:
 - Industry Trends and Best Practices
 - Migrating to Next Generation Applications
 - Liability and Confidentiality protection.

Just because you CAN, doesn't mean you SHOULD.

*An integrated program is more complicated than the independent, unilateral style of deployment because of the potential need to determine which entity is responsible for what, and how to share different components of the integrated networks...
the “system of systems”.*



FirstNet and NG9-1-1: IEEE CQR Panel Wrap-Up

Questions to/from the Panel

Other Considerations

Concluding Remarks / Next Steps

Thank you!



FirstNet and NG9-1-1: IWCE Panel Contact Info



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FirstNet and NG9-1-1

Operational Issues for
Public Safety and
Industry...

Check in with us next year!