



# NEXT GENERATION 9-1-1...

What is **IT**???

Where is **IT** Going???

Why do I want **IT**???

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Your Facilitator is:

**TERRY L. EBY, ENP**

**NG-911 INC**



# NENA Next Generation Partner Program

The NENA Next Generation Partner Program was established to work, in parallel with Technical and Operations development, on NG 9-1-1 and NG emergency communications enabling issues.





# What is NG9-1-1 and Why Should We Care?

## Today we will cover:

- Current State of 9-1-1
- Limitations of 9-1-1 Today
- What is Next Generation 9-1-1?
- Why do we need Next Generation 9-1-1?
- Is NG-9-1-1 deployable **TODAY**?
- What can we expect with Next Generation 9-1-1?

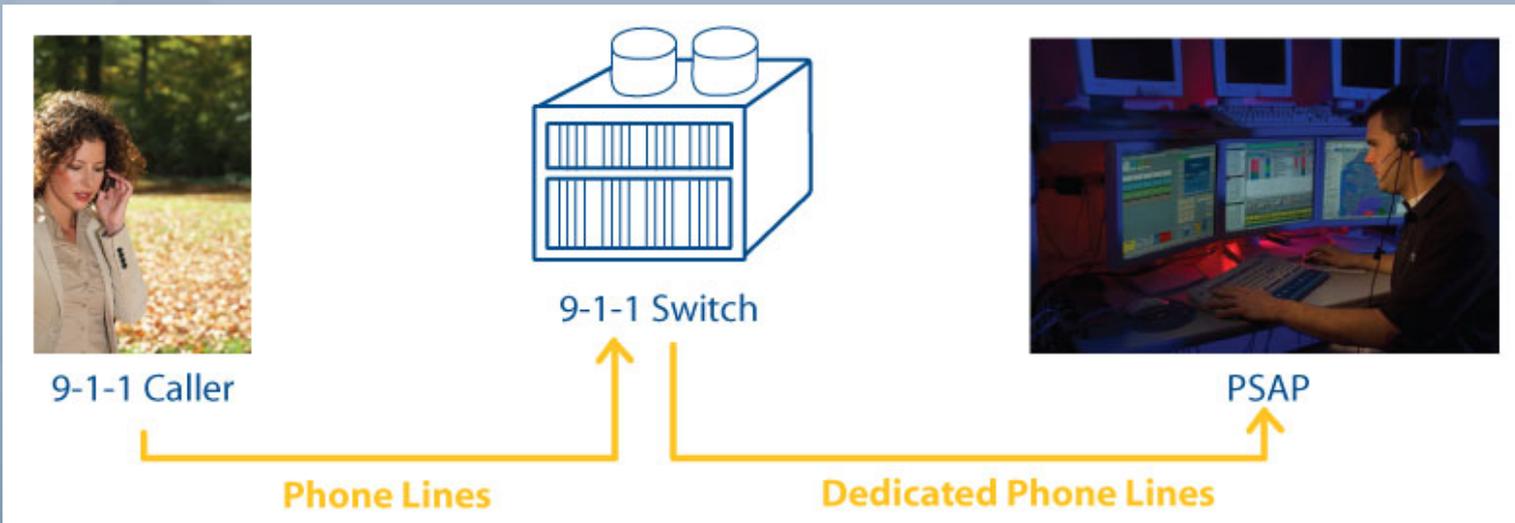
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# It's Not Just 9-1-1 Anymore!

- With technology available today – we are moving to an Emergency Services System environment.
- We will be sharing networks, bandwidth and data.
- Need to foster partnerships and leverage what we can do for one another.

# Legacy 9-1-1





# Next Generation 9-1-1 **Vision**

An evolved, fully-functional, Next Generation 9-1-1 system that is accessible **anytime, anywhere, from any device.**





# Why Do We Need NG9-1-1?

- The old E9-1-1 system design just can't cope
  - New communications technologies need 'plug and play' access and interfaces, IP capabilities
  - Constant adaptation of E9-1-1 is expensive and slow
  - Growing data rich environment – E9-1-1 can't handle
  - Need data bandwidth, modernized ESI net
  - Need nationwide and beyond intercommunication, including other emergency services (**APCO 25 and RADIO IP**)
  - Post transition, NG9-1-1 can be significantly more efficient (and likely less expensive for similar features)



# What is NG9-1-1?

- An IP-Based Replacement for E9-1-1 System Features and Functions
- Operating on Private or State Managed, Multipurpose IP Networks
- Providing Expanded Multimedia Data Capabilities for PSAPs and Other Emergency Communications Entities

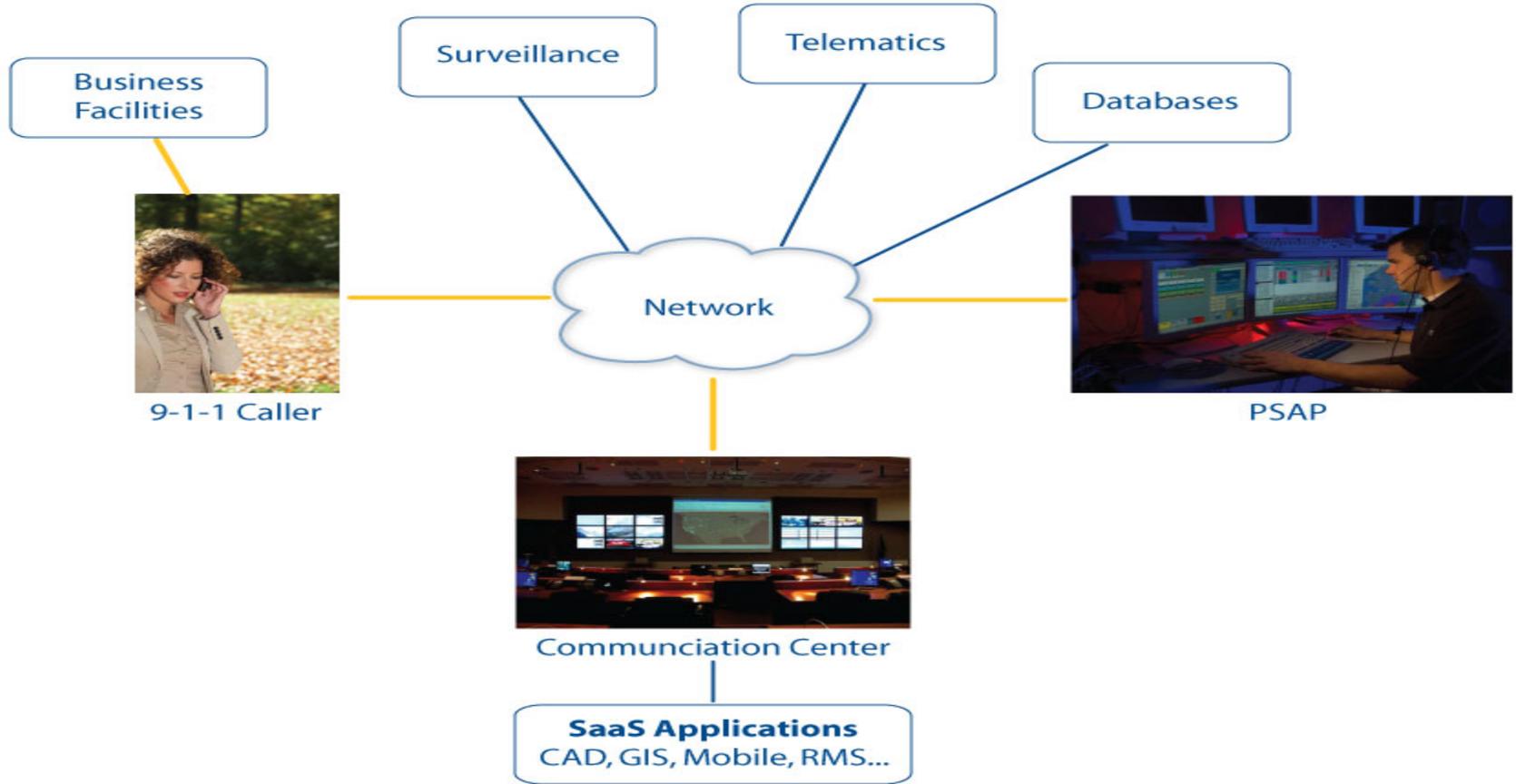


# What is NG9-1-1, cont'd?

- NENA standard i3.0
- GEO-Spatial Routing
- Complete Enhanced Wireless with SMS or IM messaging and reverse notification on cellular networks
- Video, Biometrics, Telemetrics and alarm inputs

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# NG-9-1-1 OPERATIONS





# Defining the Levels of 911 Customer Premise Equipment (CPE) **GROWTH**

**LEGACY—20 year old**

**HYBRID—stop gap**

**NG-911 IP—Deployable**

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# **Definitions** of E-911 Customer Premise Equipment (CPE) Signaling

**CAMA**-designed for banks and  
initial long distance toll records

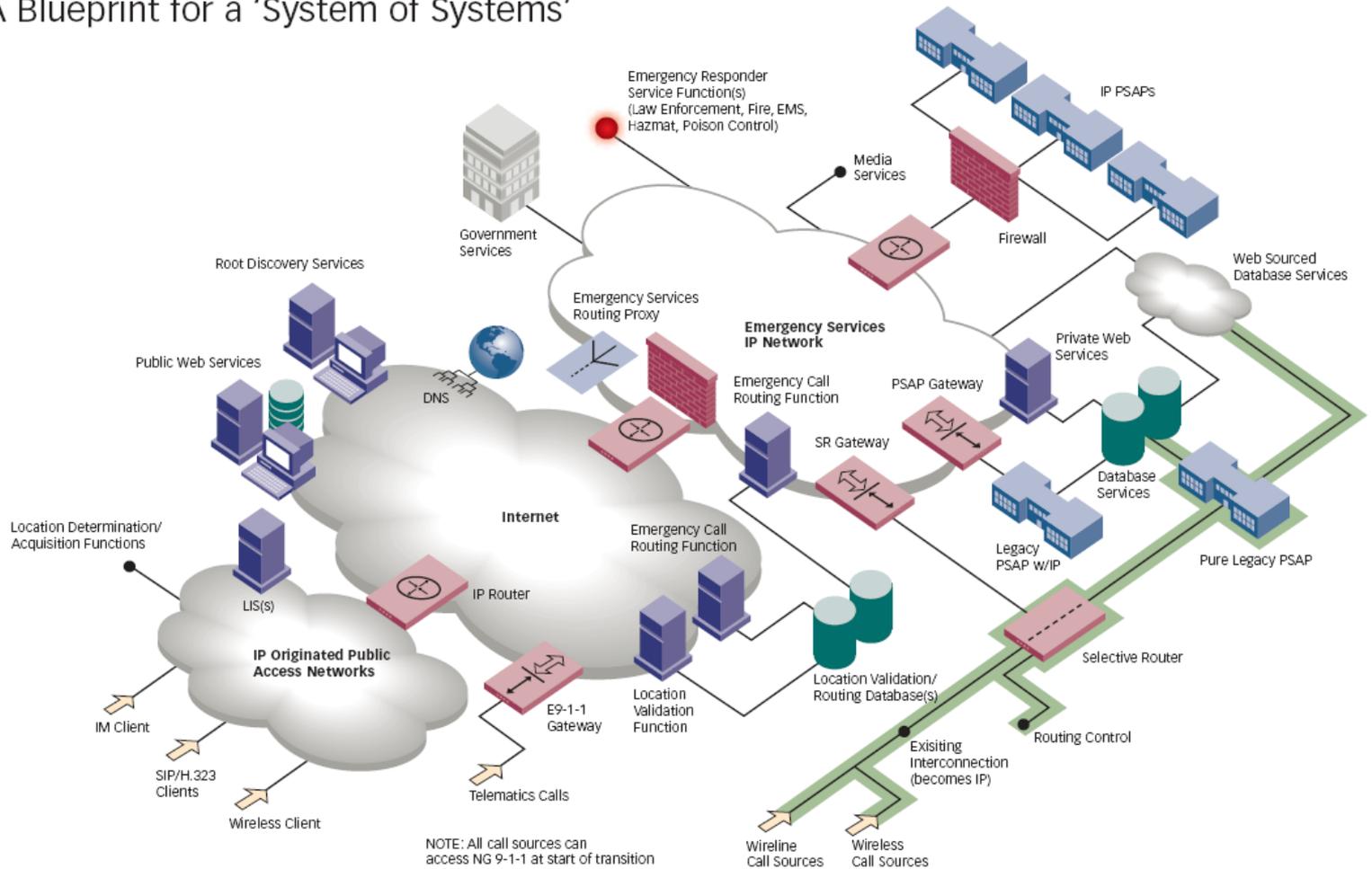
**IP Enabled or Capable**

**Native IP Signaling**



# The Future of 9-1-1 and Emergency Communications

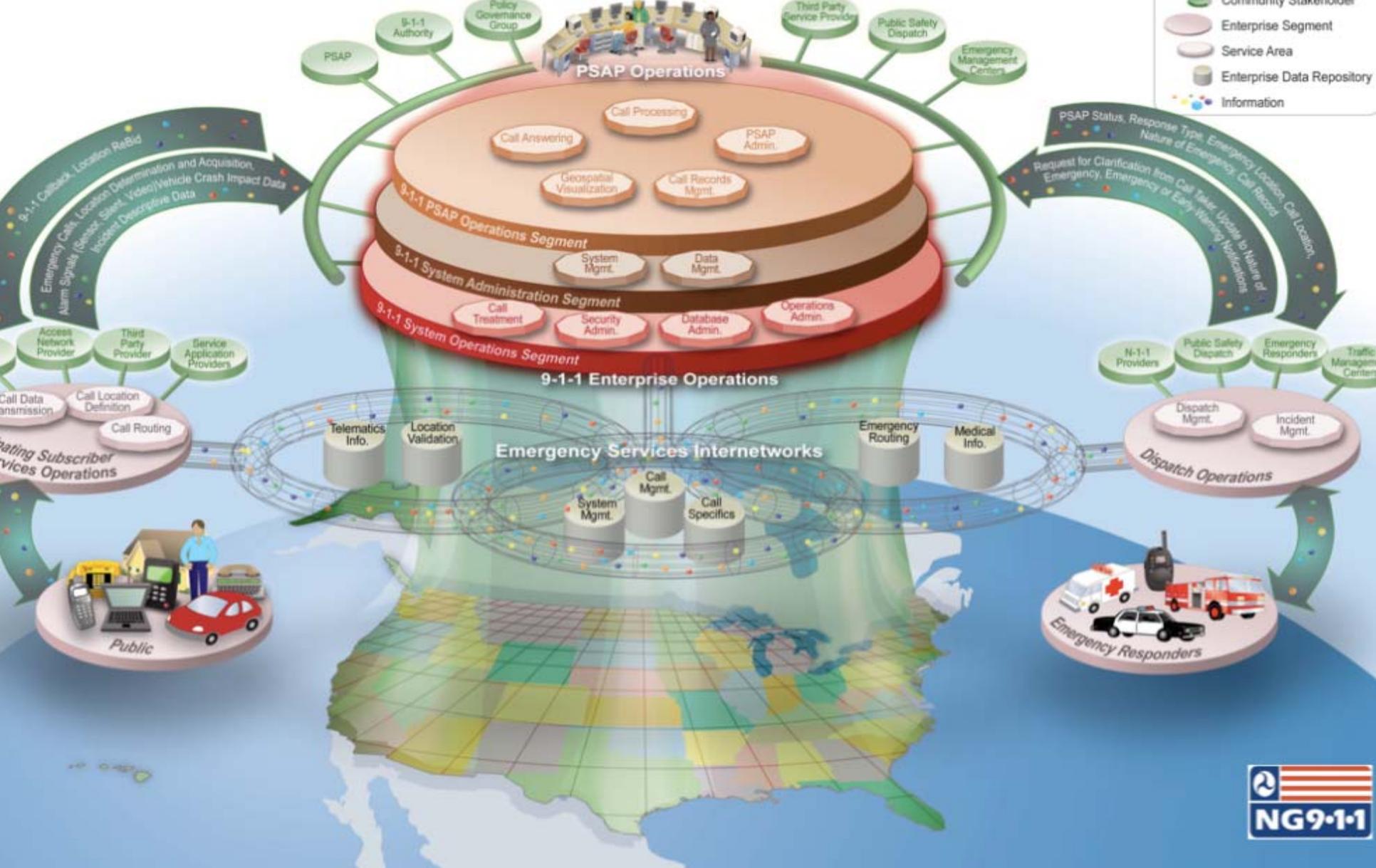
## A Blueprint for a 'System of Systems'





# THE U.S. "D.O.T." MODEL

- GEOGRAPHIC BASELINE
- EMERGENCY SERVICES INTERNETWORKS
- DISPATCH OPERATIONS
- ORIGINATING SUBSCRIBER SERVICES
- 9-1-1 ENTERPRISE OPERATIONS
- PSAP OPERATIONS





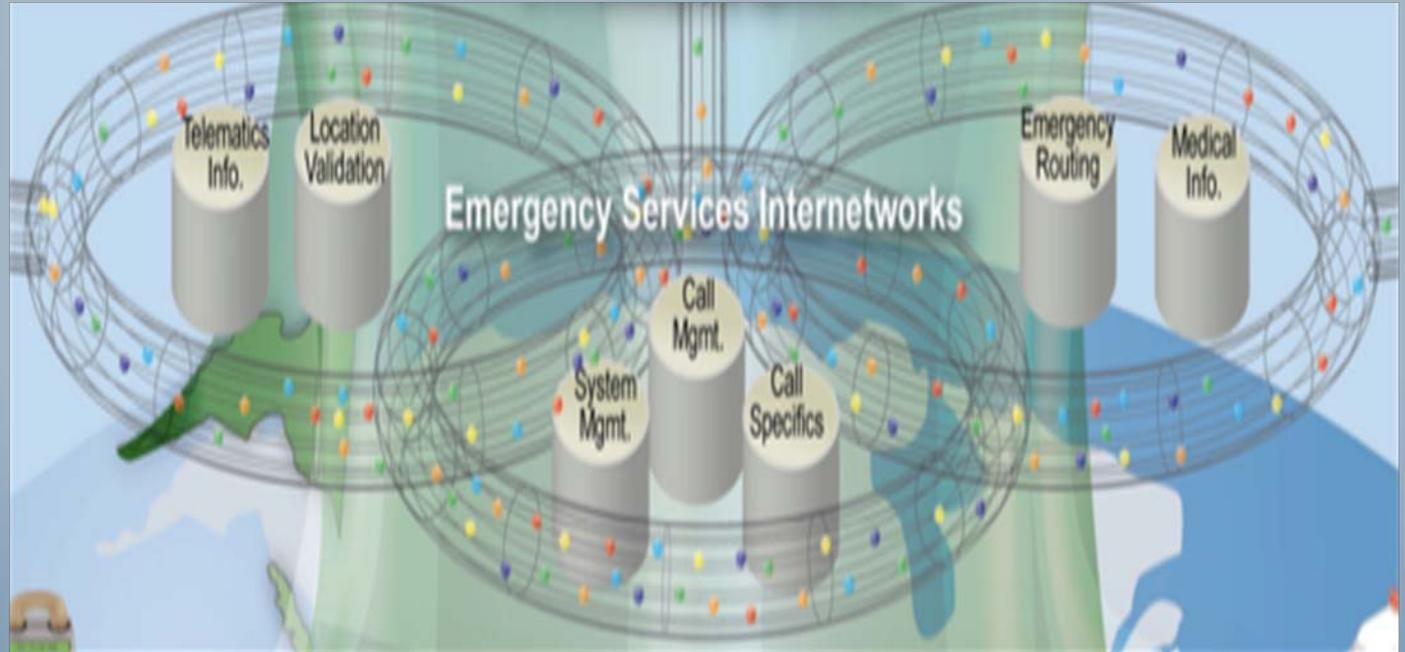
# Geographic Baseline Layer



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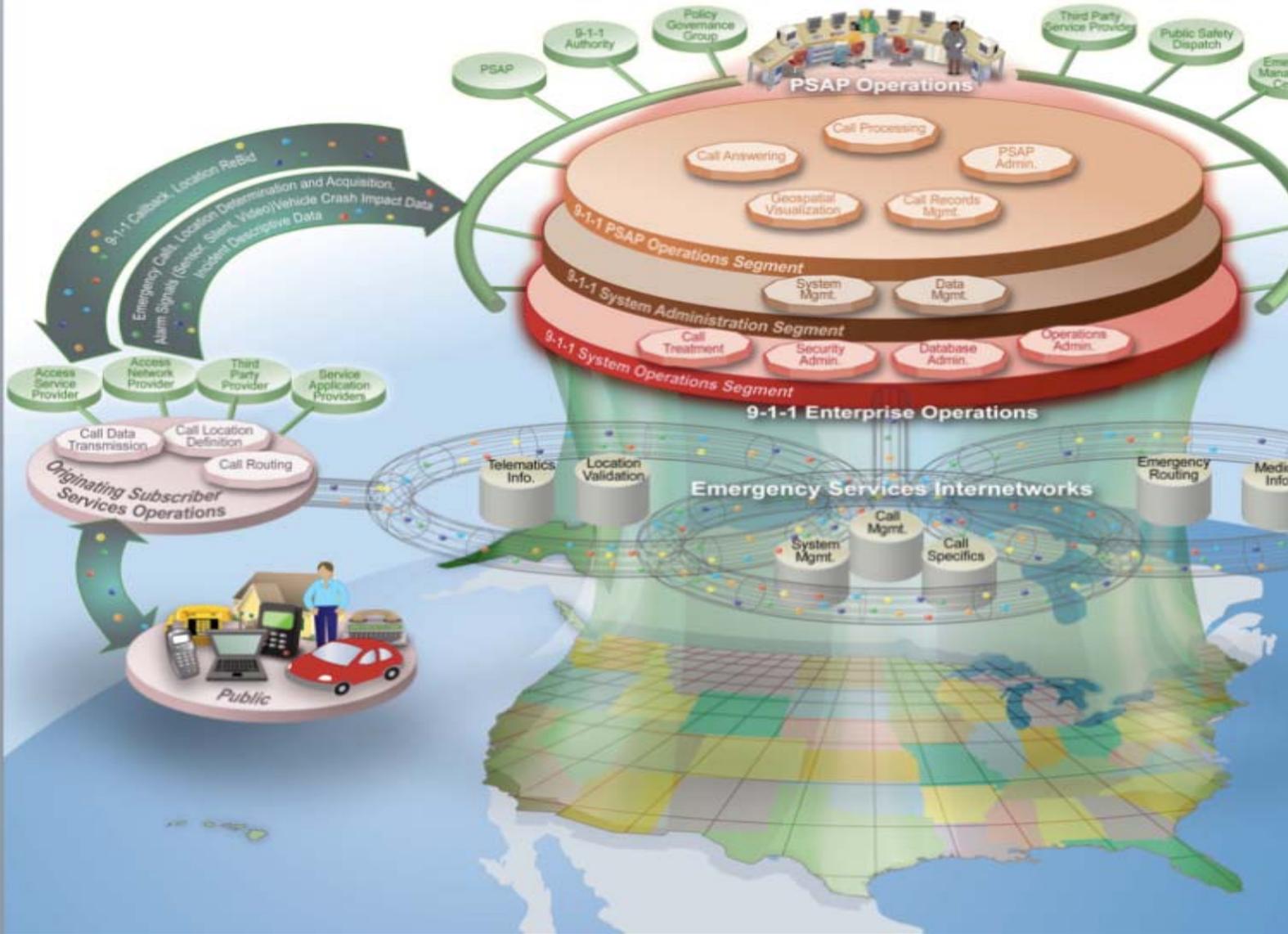


# Emergency Services Internetwork



# Dispatch Layer







# NG-9-1-1 NGPP Motto



ANY DEVICE, ANY TIME,  
ANYWHERE!





# Any Device

**All current call sources, and new ones:**

**Person Initiated Examples:**

- Video or Photo from Cell Phone
- Text Messaging/Instant Messaging

**Non-Person Initiated Examples:**

- Highway Cameras/Security Cameras
- Alarms
- Sensors
- Personal Medical Devices
- Telematics
- Consumer Electronics in Cars



# Any Time

- Interoperability
- Disaster Planning
- Special Events Call Management
- Overflow and Alternate Routing
- Rights Management
- Data Management



# Anywhere

- Location Determination
  - Civic address, IP address and X,Y (Z?)
- IP-based or compatible devices will send their location as part of the emergency call or text message.
- Passing Info to First Responders
- Virtual PSAP
  - Dynamic Staffing
  - Disaster Call Management



# IP Networks Supporting NG-9-1-1 (ESInets)

- Use IP networks as they develop (9-1-1 or other existing public safety network)
- Enterprise Mapping, IP Recording and Management Information Systems (MIS)
- NG9-1-1 functions run on the IP networks and must meet NG-9-1-1 **NENA i3.0** standards
- Expanded data access with wide area and national emergency communications capabilities



# Why is it Time for NG9-1-1?

- Resolving Infrastructure Limitations
- Equal Access for Hearing Impaired
- FISCAL RESPONSIBILITY
- Fast Data Sharing with PSAPs, and other emergency service providers & responders
- Multi-County—Regional Acquisitions
- Interoperability with N11s and 800#s
- ANY DEVICE, ANY TIME, ANYWHERE. . .

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# Geo-Spatial Routing



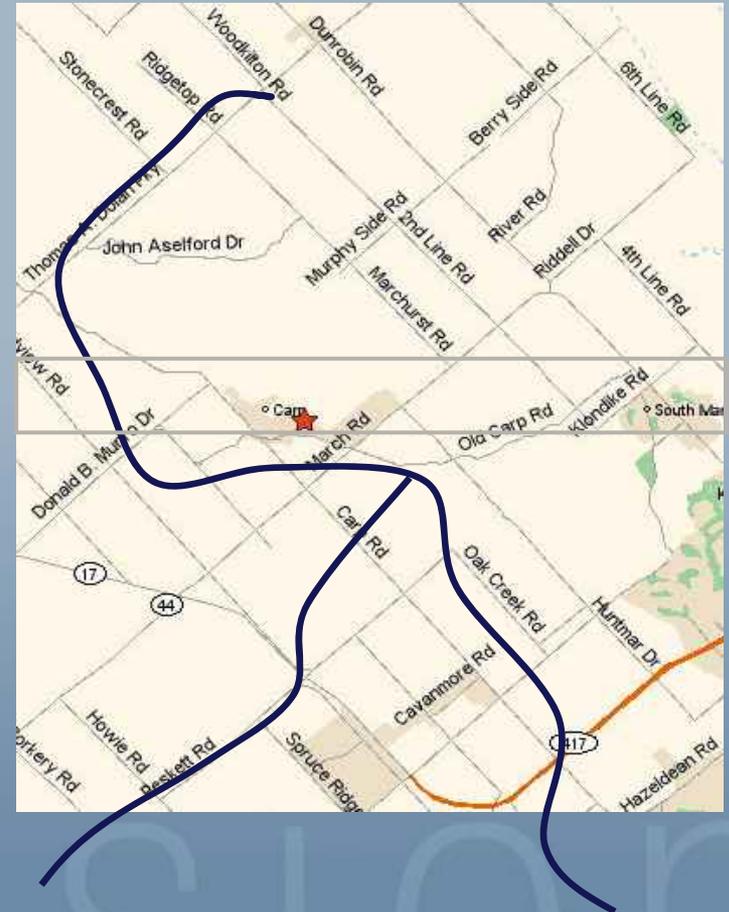
**GEO-SPATIAL ROUTING**  
**ITS NOT JUST AN**  
**ADMINISTRATIVE**  
**MSAG ANYMORE**



# Geo-Spatial Routing— ITS NOT JUST EQUIPMENT:

We must also manage the Database

- Call is routed based on its X,Y location and NOT just an ANI/ALI database
- Keys in the database are based on PSAP Boundaries and NOT just ALI addresses
- A Call's location is processed and properly MSAG validated so Operator always receives the correct address and then the Call is always routed to the correct PSAP
- Can use IP address, IM tag, VoIM tag, GPS, and not just ANI to identify Caller
- Geo-coding targets nomadic callers and Virtual PSAP's





# TECHNICAL ATTRIBUTES OF GEO-SPATIAL ROUTING

- Caller identification via ANI, location, IM Tag, or IP address
  - System is not reliant on caller having a Directory Number
- Redefine PSAP boundaries in real time
  - Support mobile or temporary Response Centers
- Automatic ESN and Selective Transfer administration
  - Critical feature for mobile or temporary Response Centers
- IP traffic engineering to avoid overloading PSAP with VoIP calls.  
Integrated ESQK, ESRN, LIS, LOS, SRDB, ALI, MPC
- Enable State and Nationwide Transfers
  - Using Directory Number or Address
  - Terminate calls correctly at any legacy, Hybrid or NG-9-1-1 equipped PSAP

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# USDOT NG9-1-1 Project



- Two Year Project (2007-2008)
- Prepare for and Conduct a 6 month 'Proof of Concept' Trial (mid-2008)
- Develop and Validate Core Requirements for the Next Generation 9-1-1 (NG9-1-1) System
- Define a System Architecture
- Develop a Transition Plan for Deploying IP-Based Emergency Services Across America.

Info at: [www.its.dot.gov/ng911](http://www.its.dot.gov/ng911)

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# USDOT NG9-1-1 Project

## Long Term Goal:

- Design a system that enables the transmission of voice, data or video from different communication devices to the PSAPs and on to emergency responder networks thru IP Broadband signaling.



## Major Milestones:

**SHOWCASE NG-911 ESI net AT**

**NATIONAL NENA IN FT. WORTH June 5-10**

***Give All CPE Vendors the opportunity to demonstrate their NG-9-1-1 product in the NATIONAL SHOWCASE!!***



# NATIONAL SHOWCASE Stakeholders

- PLANT/CML with their IP Enabled Platform
- SOLACOM Technology Native IP NG-9-1-1 Platform
- MICRO Data Softswitch enabled Platform

**That's all out of the entire 42 NGPP Members**



# GRANT MONEY: FOR NG-9-1-1 IMPLEMENTATION

- National Telecommunications and Information Administration (NTIA) **\$27.6 BILLION**
- Rural Utilities Service (RUS) **\$2.76 BILLION**
- NENA GRANT WORKSHOP at National NENA

**How to register for the Workshop:**

[www.nena.org/conference2009/funding-opportunities-workshop](http://www.nena.org/conference2009/funding-opportunities-workshop)

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# NG-911...Its no longer a myth ...**So...**Get Tough...Get Involved... Get NG-9-1-1 deployed

- It has been a privilege to speak to you today
- The NGPP can't be successful without your involvement and help in this Next Generation **GROWTH ERA**
- Contact Name and Info:

**Terry Eby, ENP**

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