

Next Generation 9-1-1 Strategies, Considerations and Options





Homeland Security

NCC

National Coordinating Center
for Communications

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February, 2017

Topics to Cover

- **NG9-1-1 – What it means may vary**
- **Technical Basics – New Terminology**
- **Issues that need to be on the radar**
- **Sensible decisions for your region**

How will NG9-1-1 Systems Be Different?

- **IP-Based: components/personnel can be located anywhere**
- **Many new communications inputs**
- **Standard interfaces will make it possible for disparate systems, PSAPs and authorized agencies to interoperate**

So...just what is “NG9-1-1?”

- Public Safety Communications is undergoing tremendous change.
- The transition from circuit switched technology to IP networks and Next Generation 9-1-1 has begun, leaving PSAP's and Telecommunicators to wonder, “What is NG9-1-1 and what does it mean to me?”
- Next Generation systems will be a “network of networks” providing connectivity between PSAPs on a network within a specified geographic area to other networks both regionally and nationally.

STANDING UP A SECURE BROADBAND IP NETWORK AND INTERCONNECTING PSAPS AND OTHER AGENCIES

A map of Cameron County, Texas, illustrating the Public Area Network (PAN) and various Public Safety Answering Points (PSAPs). The map shows the county's location relative to the Gulf of Mexico and neighboring states (New Mexico and Louisiana). Key features include:

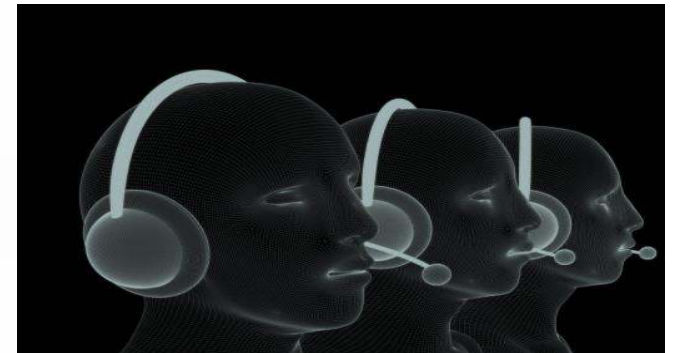
- PSAPs:** Several PSAPs are marked with red labels and icons of a telephone handset. These include:
 - PSAP (Brownsville)
 - PSAP (Harlingen)
 - PSAP (McAllen)
 - PSAP (San Benito)
 - PSAP (South Padre Island)
 - PSAP (Brownsville)
 - PSAP (Harlingen)
 - PSAP (McAllen)
 - PSAP (San Benito)
 - PSAP (South Padre Island)
- Public Area Network (PAN):** A network of lines connecting the PSAPs, representing the communication infrastructure.
- Geographical Features:** The Gulf of Mexico is shown to the east, and the Rio Grande is shown to the west.
- Labels:** The map includes labels for "Cameron County, Texas", "Public Area Network", and "PSAP".

Building a Network

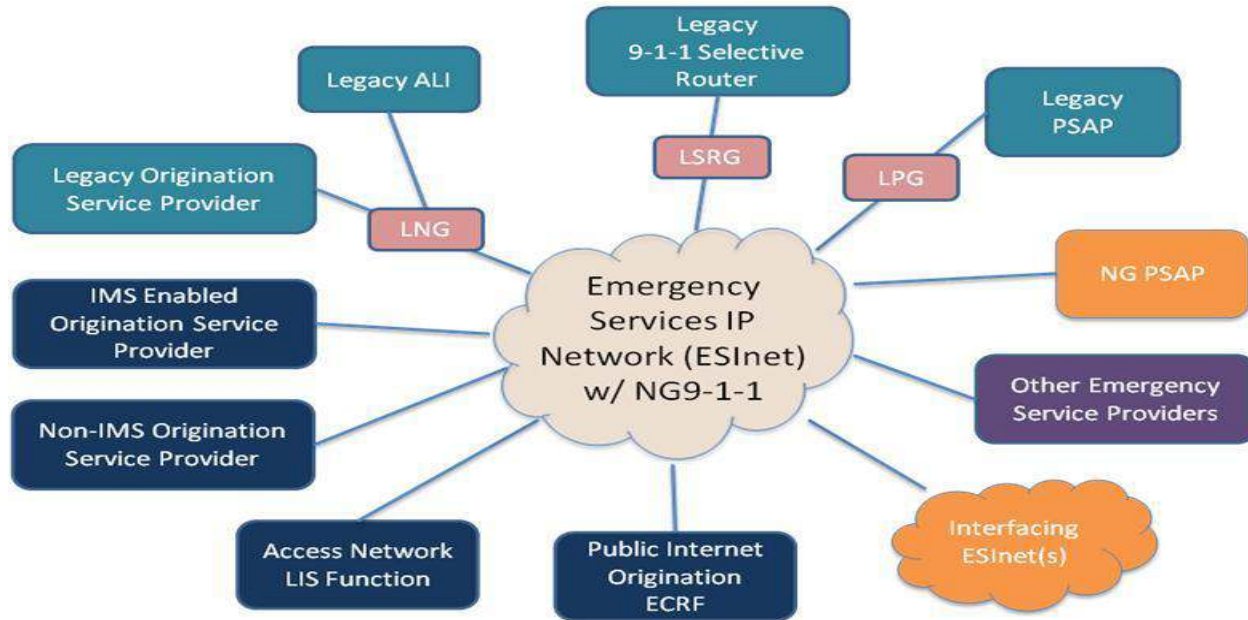
- ❖ **Does your state currently operate a secure IP network that could be used for emergency services or for delivery of 9-1-1 calls?**
- ❖ **Have you assessed requirements for bandwidth to assure that the current network will handle future traffic?**
- ❖ **How will it be managed/governed in an environment with overlapping jurisdictions?**

*What Is **i3** Next Gen 9-1-1*

- **i3** is the NENA architecture for a system of 9-1-1 services, functional elements and databases that run on an Emergency Service IP Network (ESInet).
- **9-1-1** calls will be routed via geospatial databases.
- **ATIS** is also working on an IMS based Architecture for ESInets.
- Eventually, these will replace **E9-1-1** capabilities while retaining the functions in place today.



Simplified view of NG9-1-1 environment



ESInets

- Fundamental to the formation of NG systems is the creation and deployment of Emergency Services IP Networks, or ESInets.
- The ESInet is indeed a network of networks designed to achieve specific Quality of Service (QoS), Security and reliability levels while facilitating enhanced call routing and delivery.

ESInets

- In addition the ability to reroute calls to, and share data with, any PSAP served by the ESInet is a benefit of the transition.
- In spite of the measurable benefit to making the transition, many PSAPs are finding that they are limited by equipment and networks incapable of providing a realistic evolution to NG9-1-1.

NG9-1-1 Elements



Systems & Functionality

NG9-1-1 Systems are made up of Functional Elements (FE) that will provide multiple features & capabilities. An FE does not have to correspond to a specific product or position in a PSAP.



NG9-1-1 Functional Element Examples

Dispatch	ECRF
Call Handling	ESRP
Mobile Data	BCF
Incident Creation	PRF
Logging & Recording	LVF
GIS	

Beware of legacy 9-1-1 terms that are limited to only one function

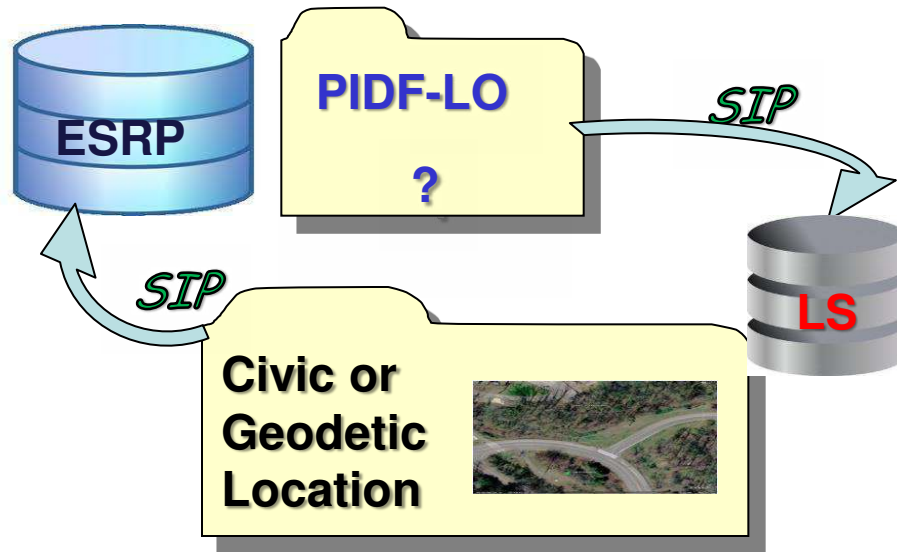
ESRP & PRF

Emergency Service Routing Proxy Policy Routing Function

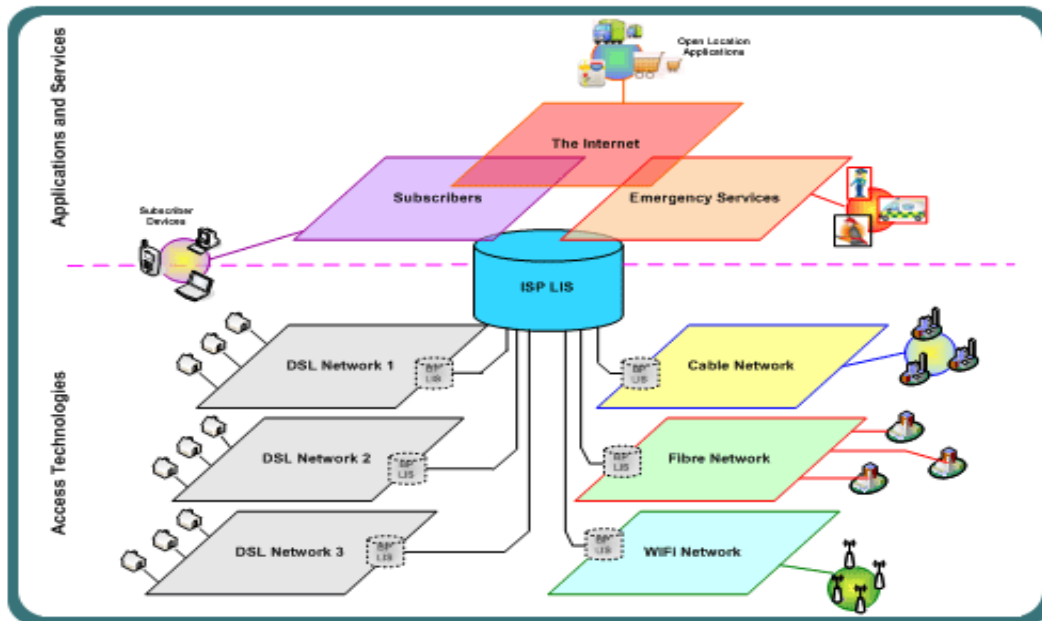
*The
Keys to
the City*



ESRP *queries the* LS (Location Server)



LS-Location Server



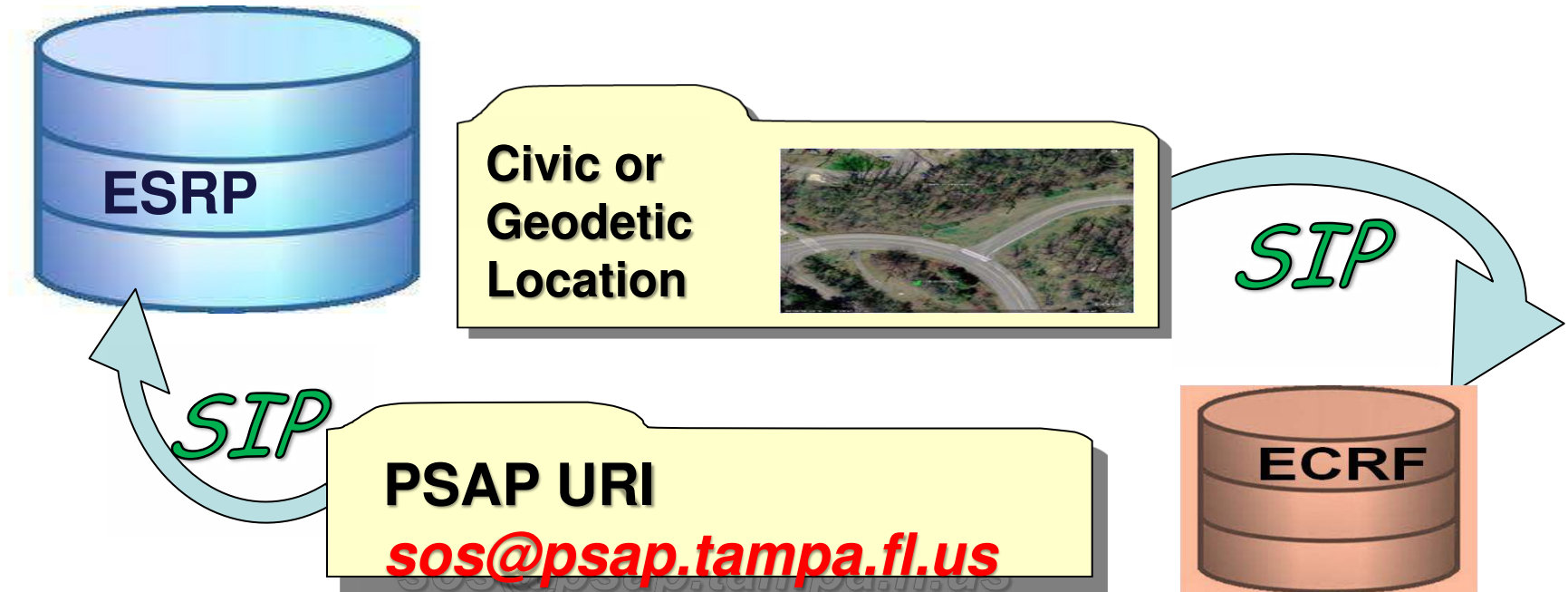
Everything Else

Left side

Apt A
4th floor

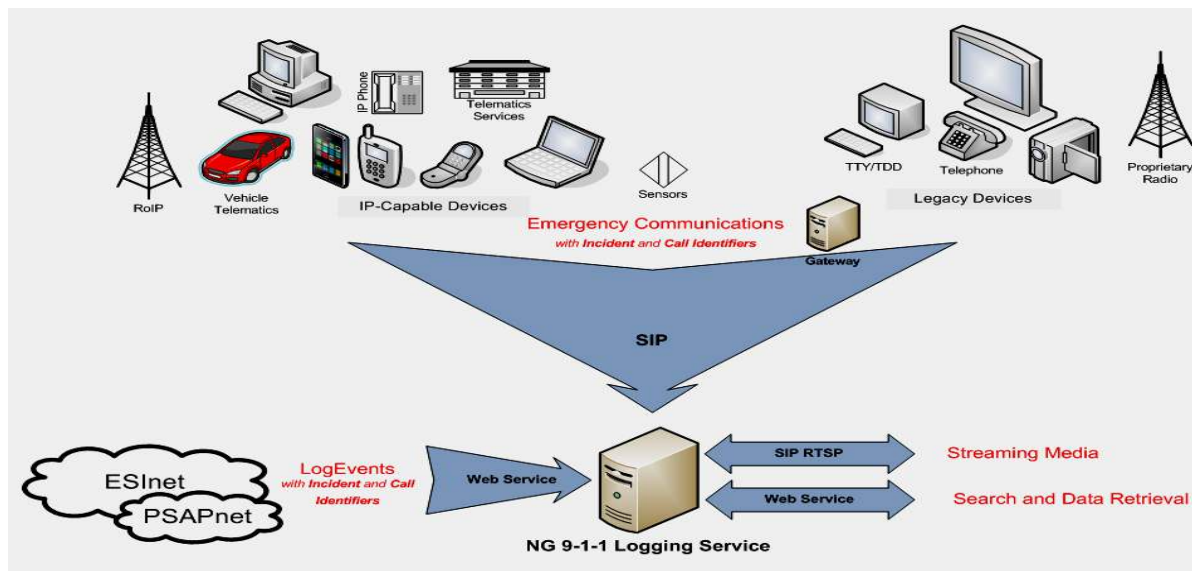
Suite 502
5th floor
SE corner of Bldg
Caution Hazardous materials

ESRP queries the **ECRF** (Emergency Call Routing Function)



NG 9-1-1 Logging Services

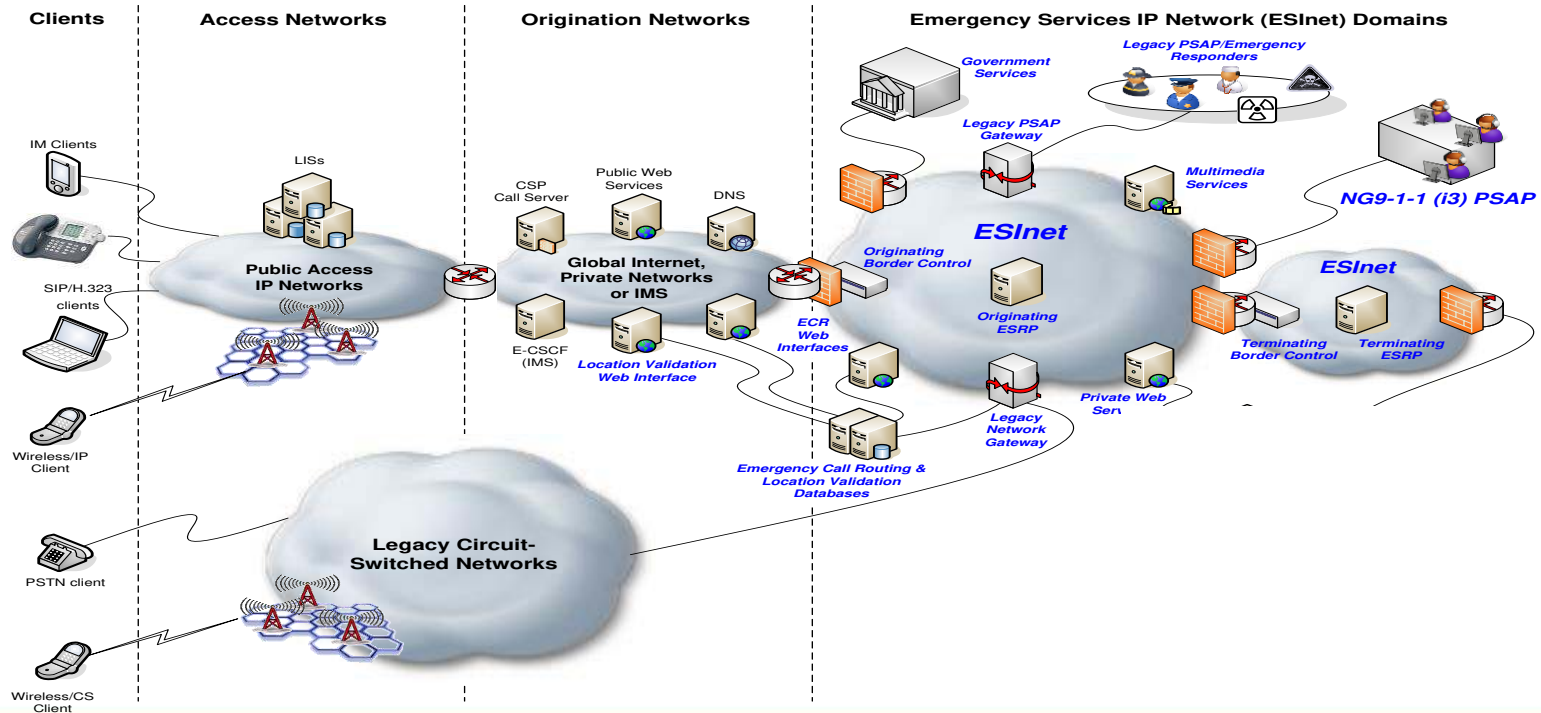
Logging Function



Cybersecurity



NG9-1-1 Logical Flow and Options



How do you position your agencies to transition to a *fully featured* NG9-1-1 system?

The devil is in the details

**Emergency
Communications
Stakeholders & Partners**

D.O.T.

N-1-1

PSAPs

**Police, Fire,
EMS
Response
Agencies**

**Hospitals,
Poison
Control**

**Media,
Private
Institutions**

**Emergency
Management**

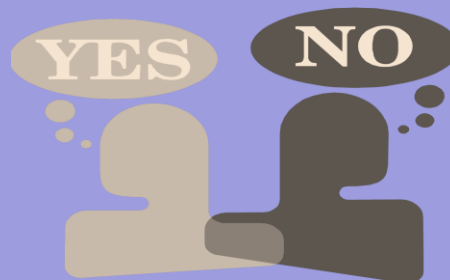
**NLETS,
NOAA,
FEMA, DHS**

**Fusion
Centers**

Service Provider Stakeholders

Who are the origination & access network providers that will be involved?

Are they ready to move forward with NG9-1-1?



Governance Issues

Funding



System Management

Who will be the designated 9-1-1 system manager?

At what levels will contracted vendors be required?

Project Management Basics



What is the Common Denominator During an Emergency?

ALL Emergencies are **LOCAL**.

***Interoperability of both voice and data
services is critical as incidents unfold and
expand.***

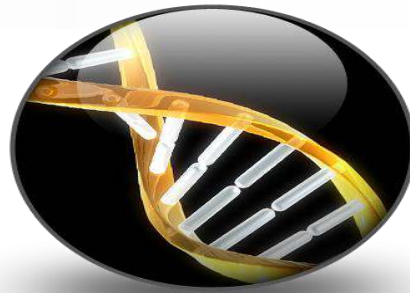
***Next Generation services can provide that
interoperability***



Collaboration is Required

Managing data, coordinating services at all levels, and paying for them all require vision, leadership and a willingness to work collaboratively.

NG9-1-1 Transition



Evolution not Revolution



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QUESTIONS?

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APCO Emerging Technology Forum
February, 2017

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