Goals / Objectives

• Local Control, Budgets, and History Shape Current 9-1-1 / NG9-1-1 Deployments
• There Is No “Standard” 9-1-1 / NG9-1-1 Deployment
• Legacy 9-1-1 in Transition
• i3 / NG9-1-1 – Challenges and Opportunities
• GIS in Transition
• Discussion
Intrado Services

- Innovative leader and pioneer of 9-1-1 technology solutions since 1979
- Provide the foundation of the nation’s 9-1-1 infrastructure
- Next Generation 9-1-1 ESInets serving nearly 22 million US population
- Support the delivery of 260 million calls to 9-1-1 per year
- Processed more than 3 billion 9-1-1 calls
- Provider of 9-1-1 technology for:
  - ILECs, CLECs, wireless carriers, satellite & cable operators,
  - VoIP & Telematics providers, public safety, and
  - State and Local government agencies
- 9-1-1 voice, data and call handling equipment to 6,000 PSAPs
Wireless 911 Oversight - 2007 to Current

- Local Program
- State Fee/Oversight & Local
- State Program
- Combo
- No Surcharge/Local Program

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Today’s Typical Legacy 9-1-1 Environment

Subscribers

- Wireline
- Wireless
- VoIP

Communication Service Providers

- End Office
- MSC
- Gateway

9-1-1 Service Provider

- Selective Router
- SRDB
- ALI Database

PSAPs

- CAMA
- Mobility
- ALI Links

9-1-1 Data Management

- MSAG, ESNs, SRDB, Subscriber records
- Data Error Management

Provisioning

GIS Data

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NENA i3 Target Architecture
Context of NENA i3 Functions – Changing Responsibilities

Interoperability
(ESInets, Legacy SRs)

Communications Service Provider
CIDB  LIS

ESInet
Security
ESRP w/ PRF
Management
Gateway
GIS
Location
Apps
SIF

Applications

PSAP
Terminating ESRP

Interactions:
- Dispatch
- FirstResponders
- FirstNet
- EmergencyCommand
- Hospitals
- CoastGuard
- DHS
- Etc.

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Geographic and Address Data

• Coordination of Address and Geographic Data
  – GIS Coordinators (e.g., County)
  – Postal Addresses (Civic or textual)
  – Call Taking and Dispatch (CAD)
  – ALI and MSAG (transitional)
  – Enhanced Data Services

• Routing Data
  – GIS Polygons (with Latitude and Longitude)
  – Equivalent (or better) results to current Selective Router database

• Public Internet Interconnection
  – ECRF / Forest Guide
  – Hierarchical Routing Rules

- GIS with 9-1-1 attributes
- GIS data coordination is challenging
- Need “dispatch-able” addresses
- Different GIS data can cause confusion across applications
Transition – Legacy 9-1-1 to NENA i3 Vision

Subscribers
Communication Service Providers

End Office
Neighbor Selective Router
MSC

PSAP Call Handling

Esnet

End Office
Neighbor Selective Router
MSC

End Office
Neighbor Selective Router
MSC

9-1-1 Data Management
GIS, Boundaries and Policy Rules
(No MSAG or ESNs)

GIS Data Management

Provisioning
SIF

GIS Data

Location and Call Data

LIS

LVF

ESRP w/ PRF
ECRF

LIS
CIDB

LPG

CAMAPSA

VoIP

Wireless

Wireline
SS7 Configuration and Distributed Functions
Solution Architecture
Multiple Cores Serving Multiple Geographic Regions
Network Responsibilities

- Neighboring Legacy SR or ESInet
- 9-1-1 Calls
- Originating Service Providers
- Legacy Network Gateways
- Intrado ECRC
- Intrado NOC
- Transport NOC
- IP Selective Router or NENA i3
- ALI Data Management
- NG9-1-1 Data Services
- Media Servers
- Call Routing Complex
- Media Servers
- Call Routing Complex
- IP PSAPs
- RTR
- CAMA Gateways
- Legacy PSAPs
Conceptual Future ESInet Hierarchical Routing
Hosted Call Handling Connection Model
Public Safety Transition Steps

- Legacy 9-1-1
- IP Selective Router
- i3 Functions
- Next Generation 9-1-1
“Smart” Operating Environment

The Right Data to the Right Person at the Right Time!

- 9-1-1 Call Taking
- Dispatch
- First Responders (NPSBN Users)
- Consumer Data
- Communication Service Providers
- Machine-to-machine Sensors
  Smart Vehicles / Telematics
  “Connected Car”

ESI.net
Applications
Situational Awareness
Commercial Services
NPSBN Core
Events
Data
GIS Tools and Services

Manage 9-1-1 attributes with your GIS data and migrate from current operating models to Next Generation 9-1-1
Tabular Address to GIS Data Management

- Numerous Validations
  - Address gap
  - Address overlap
  - Street point in wrong direction
  - Empty geometry
  - Address range parity
  - Address range order
  - Structure street parity
  - Structure address order
NG9-1-1 GIS Data Life Cycle

9-1-1 GIS Data Management Programs are complex.
Discussion