Illinois' NG911 Implementation Plan

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NEXT GENERATION 911 IS HERE

- Next Generation 911 (NG911) is about making communications better for the communities we serve.

- It's also about improving life for 911 professionals.

- Though the legacy 911 system has served the country well for decades, it has reached the limit of what it can do.

- The old 911 network simply can't take advantage of technologies that will bring greater speed, accuracy and efficiency in responding to requests for emergency help.

- The legacy system is not resilient in the ways that the NG911 system will be.

WHAT IS the NG911 INFRASTUCTURE?

- NG911 is a digital, internet protocol (IP)-based system.
- It is replacing the analog 911 infrastructure.
- It includes hardware, data, software and operational policies and procedures that enable PSAPs to be interoperable and more efficient.

NG911 INFRASTRUCTURE MODERNIZATION

- Accommodates how people communicate today—largely through mobile and digital devices.

- Allows the public to send digital data, videos, photos and texts to 911 PSAPs.

- PSAPs can receive data from other transmitting devices such as wearable medical devices, car computers and building alarms.

- Enables faster network communication and call load sharing between PSAPs.

NG911 INFRASTRUCTURE MODERNIZATION

- Enables TC's to share data with first responders, other PSAPs, agencies and organizations as needed.

- In mass casualty incidents or natural disasters—when the PSAP becomes overwhelmed by calls—NG911 allows for calls to be automatically transferred and processed by another available 911 call center.

- One of the most important strengths of an NG911 PSAP will be the ability to seamlessly, securely and immediately transfer calls and data among PSAPs.

ADVANTAGES OF AN IP-BASED INFRASTUCTURE

- Better location accuracy.
- Standardization of interfaces combines call and message services from emergencies.
- Multimedia including, voice, text, photos, and videos can be processed.
- Emergency call data that is useful for call routing and handling is integrated.

ADVANTAGES OF AN IP-BASED INFRASTUCTURE

- More detail about an incident before first responders are on the scene.

- Emergency calls, messages, and data are delivered to the right PSAP and other entities.

- Coordinated response and management is better supported by delivering both data and communication needs.

- Faster, resilient, connected and more expansive, an internet protocol-based infrastructure enables a better experience and likely outcome for call-takers and citizens alike.

HOW DOES THE NG911 SYSTEM WORK?

The next-generation 9-1-1 system has four main building blocks:

1. **ESInet (Emergency Services IP Network)**
    The ESInet is the network that delivers emergency calls to the appropriate PSAP and connects the centers to each other.

    It is the heart of the NG911 system.

    The network enables voice and multimedia, like texts, to be delivered to PSAPs through broadband networks.

    The managed and engineered IP networks provide a faster, more resilient, more capable system that even allows for linked communications across state and local governments.

HOW DOES THE NG911 SYSTEM WORK?

2. **Next Generation Core Services (NGCS)**
   The NGCS are the software and databases needed to route a 911 call appropriately on the ESInet. It includes:
   - Validation and routing data
   - Records call details
   - Enforces policy and business routing rules
   - Location data
   - Government records
   - Law enforcement records
   - Healthcare information
   - Infrastructure data

HOW DOES A NG911 SYSTEM WORK?

3. NG911 call-taking equipment provides the tools for 911 telecommunicators to receive, process and dispatch NG911 calls.

4. GIS uses location data to route 911 calls and helps responders find callers.

WHY DO WE NEED NG911?

When fully deployed, NG911 will do things we only dream of today, like seamlessly working with other public safety, healthcare and government services and with neighboring jurisdictions — even with public safety colleagues across the country.

Best of all, the transfer of highly accurate data will be real-time, allowing call-takers and dispatchers to send the right resources to exactly the right location as quickly as possible.

AT&T ESInet

Implementation & Turn-Up Project Phases

- **Requirements Gathering** – PSAP data gathered, and project plan solidified

- **Architecture** – The detailed solution design is confirmed and finalized based on the State's requirements and AT&T recommended architectural requirements

- **Integration** – Network components and facility equipment ordered, staged and installed, network paths are tested and turned-up

- **Deployment** – Cutover plans are completed and approved. AT&T approaches deployment on a PSAP-by-PSAP basis

- **Maintenance** – Handoff to the 9-1-1 Resolution Center and AT&T Service Management for support

i3 Deployment

- Uses all of the NENA i3 Voice and Data Standards
- 9-1-1 call routing is based using customer provided GIS data
- The ESInet router hands off to the PSAP LAN/WAN equipment
- The CPE receives voice via SIP (*Session Initiation Protocol*)
- Location data is delivered via SIP using PIDF-LO (*Presence Information Data Format* – Location Object that represents location information), and will perform all i3 protocols such LoST (*Location-to-Service Translation*) and HELD (*HTTP Enabled Location Delivery*)
- Call handling CPE hardware and/or software upgrades may be required

Operational Readiness

- Call Handling Equipment
  - IP and i3 Capable
  - New Protocols
    - HELD, LoST, ADR (Additional Data Repository)
    - Mapping
- GIS Readiness
  - 98% Match Rate
  - Operational Procedures
    - MSAG and GIS Coordination

i3 PSAP Deployment – IP Enabled; NENA i3

- The demarc is the IP side of the i3 AT&T router
- AT&T Field Services will place the AT&T Router in the PSAPs premise
- PSAP Staff must be able to provide site entry and assistance, as needed
- PSAPs CPE must be completely isolated from other IP networks
- PSAPs CPE switches must have one free Ethernet port per router
  - Uplinks to routers must be Ethernet crossover cables
  - Uplinks to routers must be set
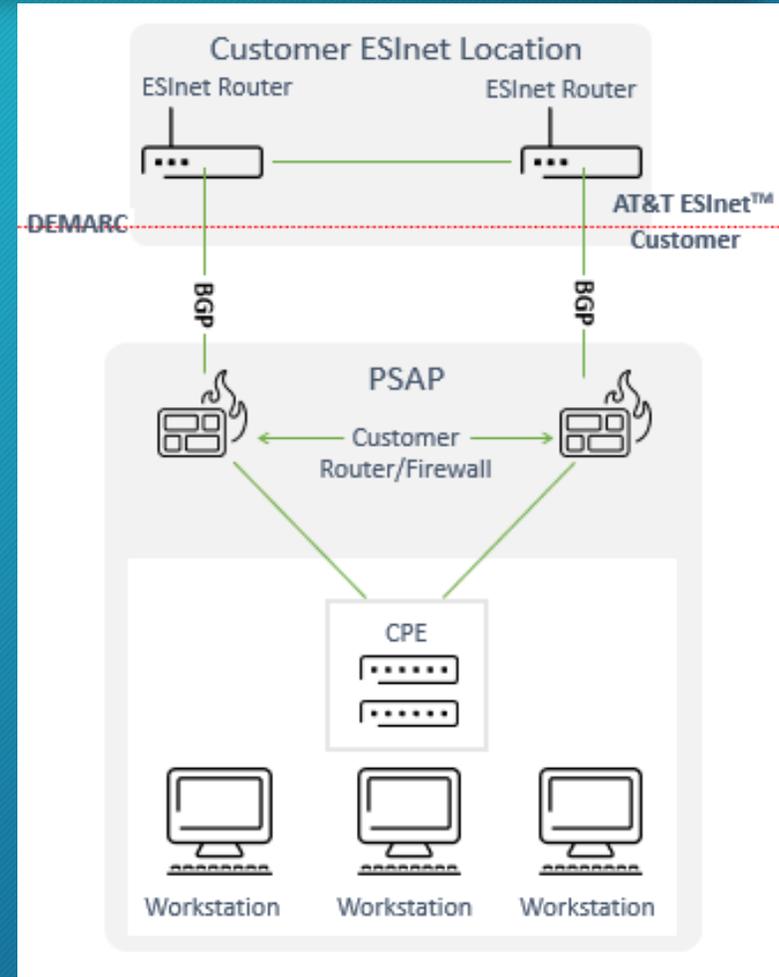
AT&T & Intrado Roles & Responsibilities

Architecture

- Finalizes Detailed Design and Carrier Options
- Provides Managed IP Network to the PSAP
- Network is designed to handle twice the number of 911 calls we handle today

System Readiness Testing

- Facility Equipment
- Network Connectivity
- Systems Provisioning
- Voice and Data Delivery Infrastructure

Service Activation

- Joint Agreement Service Deployment Test Plans
- Joint Sign-Off for Launch Date and Time
- User Training

States' Role & Responsibilities

Architecture
- Technical Resource Availability
- Support for Project Implementation and Data Collection Activities

System Readiness Testing
- Participates in Testing Activities

Service Activation
- Joint Agreement on Service Deployment Test Plans
- Participates in Execution of Service Deployment Test Plans
- Sign-off of Successful Completion of Service Deployment Test Plans
- Joint Coordination for Launch Date and Time

HOW PSAPs BENEFIT

BETTER LOCATION ACCURACY

NG911 tools allow you to get not just a caller's latitude and longitude, but an extremely accurate dispatchable location.

PSAPs will be able to view a three-dimensional map showing which floor in a building someone is calling from.

Even better, all the data that comes in with a NG call can be immediately transferred to first responders, medical providers or others who may need the information.

IMPROVED CRASH DATA

Telematics, already integrated into many vehicles, are capable of notifying 911 with precise location information and crucial details like speed at impact, airbag deployment, number of occupants, and how many seat belts were in use.

This data, available at dispatch, helps fire services and EMS prepare appropriate equipment and provides paramedics with key information to plan for transport to the appropriate hospital or trauma center.

SAFER COMMUNITIES

Once PSAPs are able to easily and quickly access media such as photos and video, citizens can readily report crimes, enabling telecommunicators to better understand a situation and dispatch law enforcement.

For example, a witness might capture a video of a hit and run in progress and send it to 911 so dispatchers, and then officers, can see the situation and the suspect.

MORE WAYS TO HELP ALL TYPES OF CALLERS

NG911 will enable new services like language assistance/translation for nonnative English speakers and help for the deaf and hard-of-hearing.

These technologies will be embedded in NextGen platforms, making them seamless for telecommunicators to use.

IMPROVED FIELD RESPONDER SAFETY & AWARENESS

New and emerging technologies in the NG911 environment provide information in the form of photos, streaming video, texts and other data that helps your law enforcement, fire services and EMS responders better understand what's happening, even before they're on scene.

Telecommunicators can access building sensors and video feeds, too, helping to identify hazardous materials, environmental conditions or the location of potential victims.

GREATER RELIABILITY & COORDINATION WITH OTHER AGENCIES

During a natural disaster, largescale emergency, or an event that generates a large call volume, the NG911 system can reroute calls when necessary.
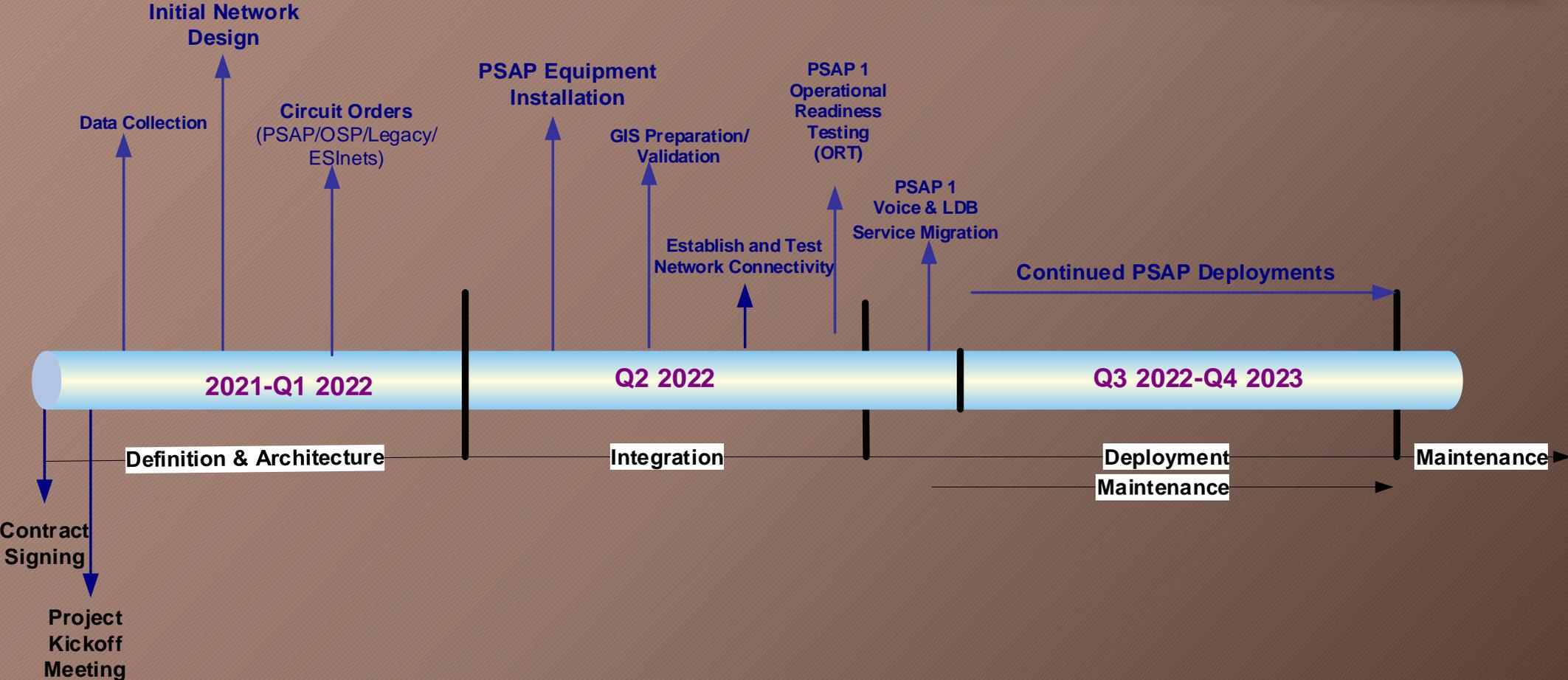
The system also allows for better coordination with first responders and between other emergency services and agencies in your area and beyond, ensuring that all 911 calls are answered, even if one PSAP experiences an outage or call overload.

Project Deployment

Implementation

- Initial deployment will include i3 Call Handling, Geo Spatial Routing and Integrated Text
- Network-to-Network Interfaces (NNI's) will connect to CSI, NCIS, NINGA and PSAP's where INdigital is the 911 System Provider
- NNI's will connect to Indiana and Wisconsin to support transfers
- NNI's will connect to Kentucky and Missouri once their ESInet's are deployed
- NNI's from the NINGA and INdigital Regions will connect to Iowa
- Access to AT&T's Customer Management Portal (CMP)

Implementation Timeline

QUESTIONS?