

NEXT GENERATION 9-1-1 (NG9-1-1)

Federal Agencies And DoD

For more than 50 years, Legacy 9-1-1 systems have served the needs of the public in emergencies. Communications have evolved to include wireless phones, text and picture messaging, video chat, social media, automatic crash notifications (ACN), and Voice over Internet Protocol (VoIP) devices. Supporting each of these communication methods will only be possible when Public Safety Answering Points (PSAPs) have transitioned to a Session Initiation Protocol (SIP) based 9-1-1 system, commonly referred to as Next Generation 9-1-1 or NG9-1-1.

NG9-1-1 will enhance emergency number services through geospatial routing, replacing legacy selective routers, creating a faster, more resilient system that allows digital information to flow seamlessly from the public, through the 9-1-1 network and eventually, directly to first responders.

NG9-1-1 For Federal Agencies And The Department Of Defense (DoD)

All federal agencies and the DoD are required to provide public safety legislation and meet NG9-1-1 standards under DoD Directive 8422.01E, DoD Public Safety Communications Capability, June 8, 2022. NG9-1-1 will focus on emergency communications centers and first responders to significantly improve information flow and emergency response.

Eleven federal agencies operate several hundred 9-1-1 call centers throughout the U.S. on military installations and in other federal facilities. Officials from these 11 agencies cited challenges associated with implementing and operating NG9-1-1. Ongoing challenges include maintaining interoperability with state and local call centers, cybersecurity risks, and increased data management responsibilities.

Highlights

Problem

- Legacy 9-1-1 systems can't handle modern communication methods like wireless calls, text, video, social media, and VoIP.
- PSAPs are limited by outdated infrastructure, affecting their ability to meet public expectations and respond efficiently.

Impact

- Without NG9-1-1, emergency services will:
 - Struggle to process digital data (e.g., text, photos, videos).
 - Face slower response times and reduced accessibility.
 - Risk compromising public safety and responder effectiveness.

Solution

- Transition to Next Generation 9-1-1 (NG9-1-1) with SIP-based systems:
 - Supports digital communication (voice, text, images, video).
 - Enhances routing accuracy and call transfer flexibility.
 - Improves system resiliency and response speed.

Outcome

Enterprise-Wide & Hosted 9-1-1 Call Routing and Management Service US Navy 911 RMS dispatcher **LOE reductions over 50%** while simultaneously improving emergency dispatch response time.

National Emergency Number Association (NENA) I3 Standards

NENA i3 standards refer to the NG9-1-1 system architecture based on 3rd Generation Partnership Program (3GPP) IP Multimedia Subsystem (IMS) framework and defined by NENA. Next Generation Core Services (NGCS) are the base set of services/elements needed to geospatially route NG9-1-1 sessions.

Elements Of The Next Generation 9-1-1 Solution

The two primary elements of a modernized Next Generation Cores Services & NG9-1-1 include:

1

The Deployment of a secure Emergency Services IP Network (ESInet) .

2

Modernized PSAP capabilities that operate within IP Networks.

Comprehensive NG9-1-1 solutions include:

- Integrated systems, applications and communications (CAD, LMR, FirstNet, FSA, EMNWS, FBI Databases, Crash Systems, Physical Alarms, & other)
- Private Switch Automatic Location Information (psALI), Location Identification Service (LIS) data and Telephony Management Systems (TMS) Integration
- Adherence to a Zero Trust Architecture (ZTA)
- Geospatial Information System (GIS) & Geospatial Routing (ECRF/LVF, ESRP, SI)
- Geo-Fencing to delineate areas of responsibility for Public Safety
- Land Mobile Radio (LMR) Upgrades, Integration & Interop with state/municipal systems
- Mass Notification Systems, capabilities and integration (UFC 4-021 In building mass notification, Reverse 9-1-1, and Integrated Public Alert & Warning System (IPAWS)
- NG9-1-1 Call Flows & interaction with Public ESInets
- Data collection and verification for both GIS & LIS databases, storage (SI), and distribution methodology to be used.
- Execution of NENA Privacy requirements
- Artificial Intelligence (AI) enhancements to support Real-Time Language Services, Call Triage and Call Handling
- Federal, State & Local Public Safety Integrations

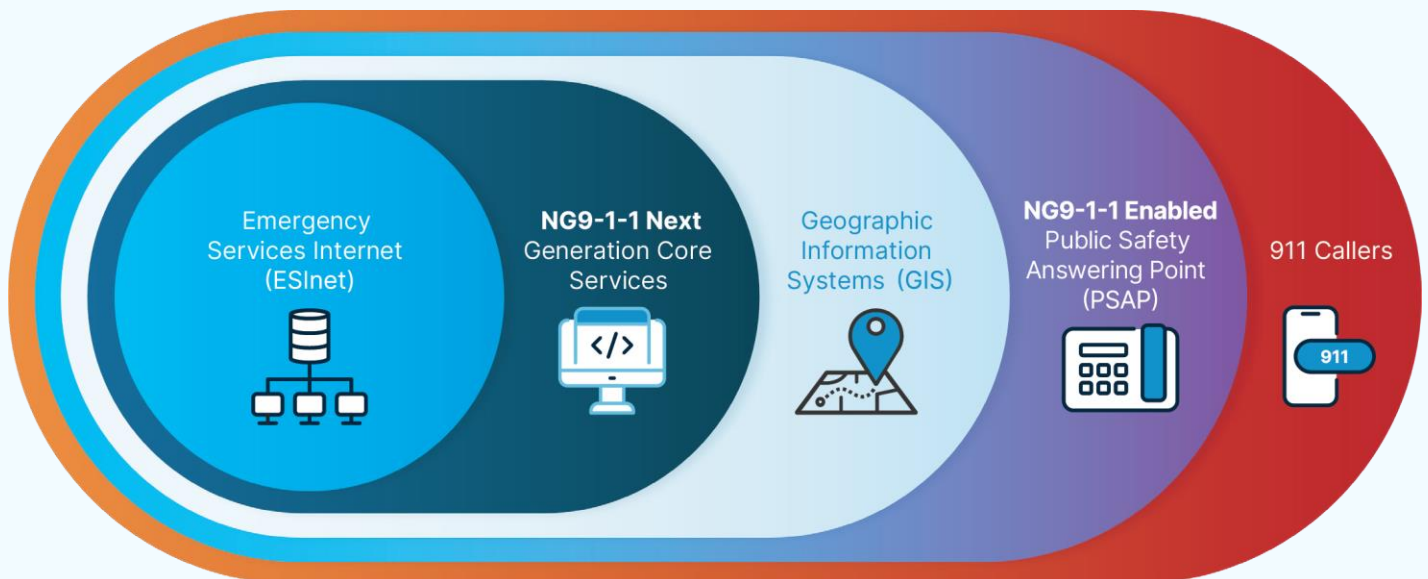


Figure 1: Next Generation 911 (NG9-1-1) Infrastructure Components

Navy 911 RMS Solution

Tyto Athene provides Enterprise-Wide Call Routing and Management Services 24/7/365 for all US Navy Regions across CONUS, Hawaii & Guam.

The Tyto Athene designed and delivered solution facilitated a Navy 911 Dispatcher LOE reduction from 650 to less than 300 while simultaneously improving emergency dispatch response time.

- 58 Bases Supported
- 1 Million Emergency Calls Annually
- Navy realized \$25M Annual Personnel Cost Savings

Guam Fire Department PSAP Deployment

Tyto Athene designed and deployed the NG9-1-1 as a Service Public Safety Answering Point (PSAP) solution conforming to NENA i3 Standards.

Tyto Athene provides a robust, secure, redundant cloud-based service with geographically diverse Guam Data Centers.

Tyto Athene maintains as a service the entire suite of PSAP equipment including Call-Handling Workstations, CAD, and recording at the Guam Fire Department HQ

PSAP achieved operational status May 2023.

Public Safety Services

Tyto Athene is an experienced System Integrator in the Public Safety Arena with the resources to deliver comprehensive NG9-1-1 solutions for our Federal & DoD customers. Services include survey, planning, design, implementation, integration and sustainment.

- US Navy 911 RMS
- US Air Force E9-1-1 Modernization and ALI Management
- SSA E9-1-1 Modernization
- Army Red River Depot E9-1-1 Modernization
- Guam Fire Department PSAP Modernization
- MS Teams Solution

Tyto Athene has an existing Public Safety Ecosystem to support NG9-1-1 projects for Federal and DoD customers.
US Navy 911 RMS

- Supply Chain Partners with JITC APL certified solutions
- NOC & Services Desk with IAT Level II certifications and experience with public safety systems.
- System Level & Field Level Engineering familiar with JITC APL, RMF, and ZTA
- DoD Centric NENA ENP Public Safety and MNS Certified Engineering

About Tyto Athene

Tyto Athene, LLC, a large portfolio company of Arlington Capital Partners, was established as an IT services and solutions providers specializing in mission-focused digital transformation. Our goal is to enhance client experience and drive successful outcomes through innovative technology solutions.

As a full-service systems integrator, Tyto Athene empowers clients with the ability to make informed, timely decisions by providing secure and ubiquitous access to enterprise information across their operating environments. We leverage cutting-edge technologies, strategic innovation, and proven methodologies to deliver successful results for clients worldwide. With a full spectrum of industry-leading capabilities, substantial scale, and extensive resources, we are equipped to meet the increasingly complex demands U.S. government agencies. Supporting the rapidly evolving mission requirements of federal clients remains our top priority.

Our combination of experience and forward-thinking technology solutions gives Tyto Athene customers a distinct strategic advantage. Our primary objective is to deliver the best solutions and services available in the market to our trusted partners and clients. Tyto Athene remains committed to providing our high-quality products, superior service, and world-class technical support.



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For more information about our digital transformation services,
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