

F R O S T & S U L L I V A N

BEST PRACTICES AWARDS



Atos

2020 NORTH AMERICAN NEXT GENERATION 9-1-1
GROWTH EXCELLENCE LEADERSHIP AWARD

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Background and Company Performance

Industry Challenges

As the dramatic pace of innovation transforms consumer behaviors, Frost & Sullivan analysts monitor how a game-changing paradigm shift in public safety is occurring across the United States. The proliferation of next-generation networks, 'smart' devices, and the Internet of Things (IoT) is radically changing how public safety entities think about traditional communications, ushering in an array of new challenges, requirements, and opportunities.

The staggering growth in smartphone adoption, in particular, has triggered the need for significant changes to the way public safety answering points (PSAPs) operate, as Frost & Sullivan research indicates approximately 85% of emergency 911 calls now originate from a mobile device. Moreover, as younger generations increasingly use IP based communications (such as text rather than voice) as their default communications channel, the public safety sector must adapt to support these evolving, but increasingly common, exchanges.

As such, Frost & Sullivan notes that public safety answering points (PSAPs) will be challenged to keep up with the pace of technology innovation and evolving consumer behaviors. With the limited capacity and capabilities of legacy communications infrastructures, PSAPs and first-responders are often unable to access vital information and context to triage, plan, and react to emergency situations. Unfortunately, in many localities, the information gaps result in a significant lack of situational awareness. PSAPs, in many cases, only receive the most basic details, such as a 9-1-1 dialer's name and general location.

In this environment, the National Emergency Number Association (NENA) approved a framework of core technical guidelines for implementing a Next Generation 9-1-1 (NG9-1-1) system known as the i3 architecture. The i3 framework is an architecture designed as an IP-based 'network of networks' for all public safety and emergency service entities. In contrast to a legacy voice-centric E911 network, NG9-1-1 supports a more diverse set of IP-based communications, including text, data, photos, and video exchanges that enhance the speed, accuracy, and preparation of first responders.

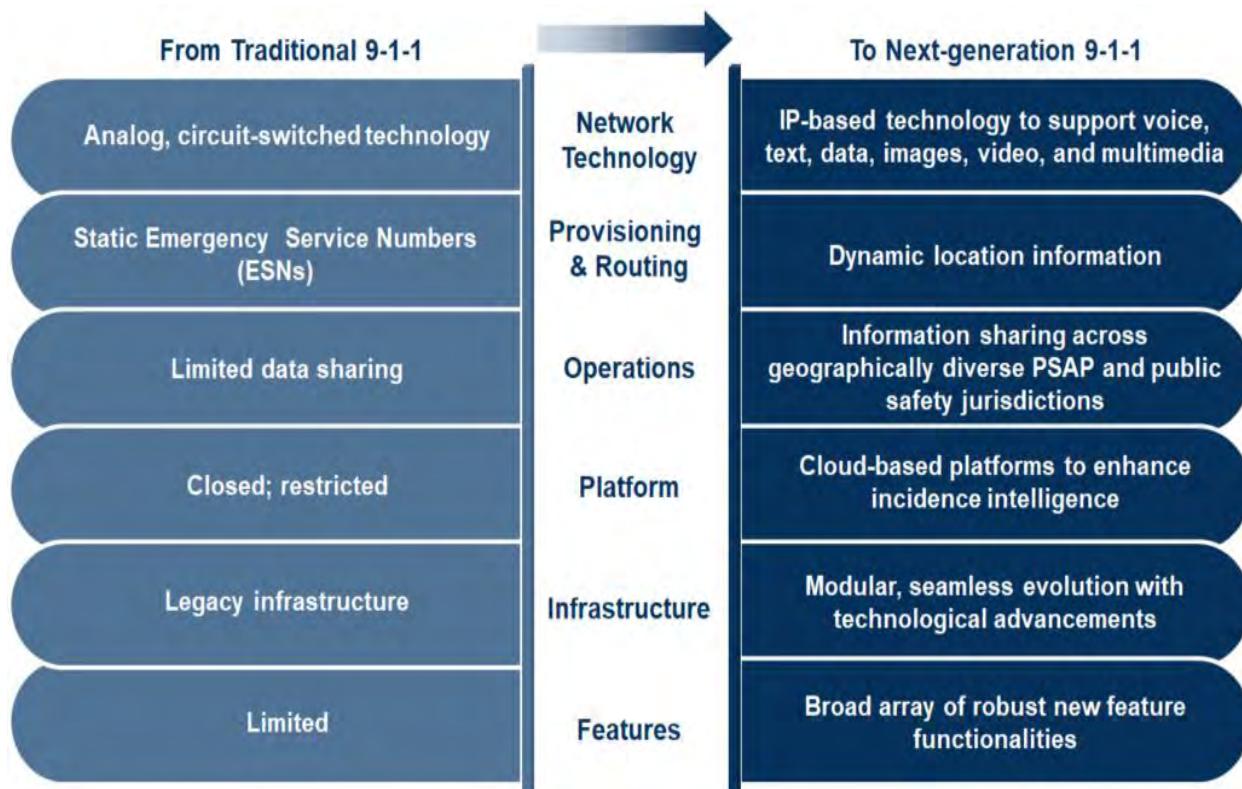
Moreover, recent Federal Communications Commission (FCC) actions and legislation¹ have mandated PSAPs to receive richer information types and on-site dispatchable location, cross-referenced against multiple databases; however, the gap between possible information and reality remains quite vast. Legacy technology and infrastructure is common across much of the country, with many analog time-division multiplexing (TDM) circuits and routers installed in the 1980s still in service. Legacy infrastructure is increasingly expensive to maintain, difficult to scale, and unable to support newer forms of communication exchanges. In today's environment, Frost & Sullivan concludes that it will be critical to improve the speed to market, performance, and reliability of public safety

¹ *Federal Communications Commission. "FCC PROPOSES ACTION TO HELP THE PUBLIC REACH 911 AND BE LOCATED BY FIRST RESPONDERS." News release, September 26, 2018. <https://www.fcc.gov/document/fcc-proposes-action-help-public-reach-911>.*

products, services, and solutions as the demands of the market evolve.

NG9-1-1 introduces an array of innovative features and functionality that will significantly expand public safety capabilities and allow end-users to relay text, data, video and IP based voice calls efficiently in emergencies. Additionally, public safety organizations will benefit from enhanced network capacity and performance from replacing circuit-switched networks to IP networks.

The Imminent Paradigm Shift for 9-1-1



Source: Frost & Sullivan

Frost & Sullivan believes the next 12 to 24 months to be the most critical time for state and local 9-1-1 administrators to properly identify and secure the appropriate partners for their NG9-1-1 implementations. Success will rely on identifying partners with flexible platforms that support multiple endpoints and can negotiate the delivery of scalable solutions that are highly resilient with instant failover and backup services.²

² Next-Generation 911—The Future of Public Safety, Forecast to 2023: Public Safety Paradigm Shift Triggers Growth Opportunities for Next-Gen Core Services, (Frost & Sullivan, October 2018).

Growth Performance and Customer Impact

Atos began offering solutions to the North America market in 2002, with the first major deployment of E-911 in Baltimore County, Maryland. They quickly demonstrated a comprehensive vision and robust portfolio of public safety solutions. Leveraging the resources of a global organization with research and development, manufacturing, compliance, and expertise across a range of industries and variables, Atos stands alone in the public safety space to deliver from end-to-end under one vendor heading.

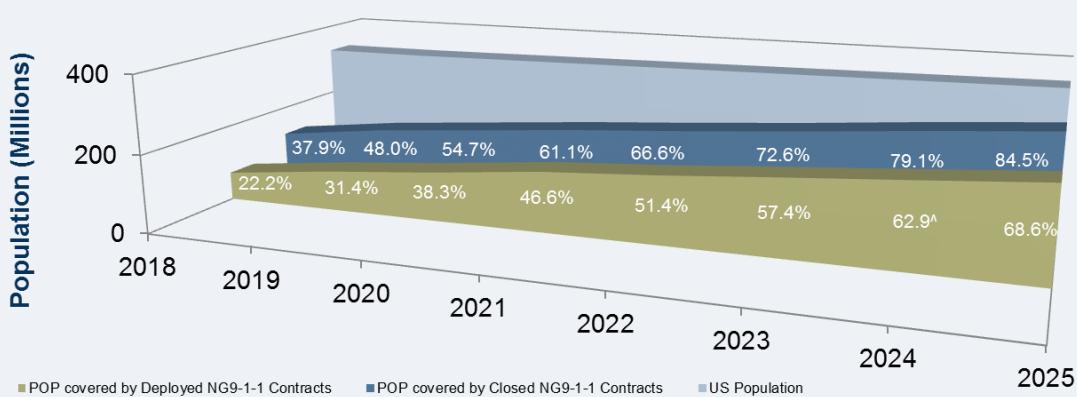
With over 20 years of experience supporting the public safety sector in Europe and a worldwide partner of the Olympic Games since 2001, Frost & Sullivan recognizes how Atos equips customers with the tools to properly transform the entire end-to-end customer experience digitally and enable transformational IT projects at any scale.

A Comprehensive End-to-end Deployment and Integration under One Umbrella

As the public safety sector moves past the early adoption stage of NG9-1-1, significant momentum is building in the number of state-wide and local NG9-1-1 RFPs as standards have become clearer. Moreover, the entry of large integrators has accelerated progress and reduced the complexity of NG9-1-1 for PSAPs.

Frost & Sullivan measures the growth opportunity of NG9-1-1 by tracking closed NG9-1-1 contracts. A closed NG9-1-1 contract constitutes a legal agreement between the purchasers of NG9-1-1 systems—generally, counties or states that control PSAPs—and the primary NG9-1-1 service provider. Frost & Sullivan research suggests that market penetration, based on the United States population covered by NG9-1-1 contracts, will grow from approximately 48.0% at year-end 2019 to approximately 84.5% by 2025 as depicted:

NG9-1-1 Market Penetration Forecast, US, (2018-2025)



- Frost & Sullivan expects the total market penetration of closed NG9-1-1 contracts to grow from approximately 48.0% at year end 2019 to 84.5% in 2025.
- The total market penetration of deployed NG9-1-1 contracts is estimated to grow from approximately 31.4% at year end 2019 to 68.6% in 2025.

Note: All figures are rounded. The base year is YE 2019.

Source: Frost & Sullivan

The typical significant costs to PSAPs when upgrading to NG9-1-1 architectures are related to:

- Connectivity (that is, the cost to access the ESInet)
- Next Gen Core Services (NGCS)—the technology and services that intelligently obtain, manage, control, store, validate, and route IP-based data and processes in the NG9-1-1 services-oriented architecture
- NG9-1-1-compliant customer premise equipment (CPE)
- The costs associated with their chosen architecture (either dedicated or hosted) to provide the NG9-1-1 service.

Atos provides all of the core functional elements inherent in an NG9-1-1 solution (NGCS, ESInet, call handling equipment, GIS, CAD) under its own heading. While large integrators have triggered recent NG9-1-1 market growth, many NGCS providers simply license their technology to an integrator that ultimately serves as the primary service provider. Only a few select providers, such as Atos, have the capabilities to serve as both an NGCS provider, as well as the end-to-end integrator and primary service provider for an NG9-1-1 deployment.

OpenScape: A Scalable, Integrated Platform

Atos's *OpenScape Voice* platform powers the NGCS as well as the call handling in a single integrated platform for extremely efficient NG9-1-1 workflow management. The OpenScape Voice platform operates on a clustered architecture for high availability and scalability. The voice platform can switch 50,000 calls per hour, equal to 438 million calls annually. Working in tandem with voice, the *OpenScape First Response* browser-based application processes emergency 9-1-1 calls in a NENA i3-compliant unified desktop. Simplified deployment requires minimal hardware, and the customizable and intuitive interface allows fast assimilation to existing workflows. NGCS extend the OpenScape Voice with a module for the *OpenScape Emergency Router* pulling in standards-based interfaces for emergency call routing functions, location databases, and location information servers. Atos works closely with leading location and routing database vendors to smoothly integrate location-based services and GIS into the NGCS solutions—and to meet the practical needs and regulatory requirements of the state or locality.

Atos assists localities with end-to-end digitalization and management, from design to implementation and support. For locations, such as St. Francois County, Missouri, Atos furnishes a complete transformation for PSAPs and their communications networks. The county leverages managed 9-1-1 network domain services, in addition to new endpoints and ruggedized laptops, provided by Atos. As a true end to end provider, Atos actually continues to manufacture its own enterprise phone endpoints and is the top reseller of Dell equipment. Moreover, Atos provides fully managed services at scale, including cyber-security, managed data center services, cloud storage, and multimedia workflow applications. For customers without significant IT expertise and resources, Atos handles the migration and integration as a single vendor with a unified vision and platform that simplify the digital transformation ecosystem.

Building a New California System through Dedicated Planning

In August 2019, Atos marked a significant achievement in announcing a 5 year, \$198 million contract with the state of California to execute a massive transformation in the state's 9-1-1 system—introducing a new broadband communications platform. As the prime network service provider for the California Governor's Office of Emergency Services (Cal OES), Atos will oversee the management of all emergency call flows for the entire state as well as integrate the standards and governance of four regional ESInets. Once deployed, the new system will enable intelligent call routing to the proper PSAP, to accept and channel a variety of real-time information, including SMS messaging and real-time text to 9-1-1.

With Atos's flexible infrastructure, California will be prepared to support its population of nearly 40 million people and their evolving consumer behaviors, not only with contemporary technologies, but also with more advanced multimedia capabilities (such as video and photo 9-1-1 responses) at a later date.

Atos provides network services, fall back services, traffic aggregation support, in addition to last-mile de-confliction. Moreover, Atos will remove legacy selective routers and steer network traffic into its aggregation centers. The new system provides every one of the 439 PSAPs in the state of California with 2 links to Atos data centers and two links into the prime core services (Note: Each of the regions also provides 2 links). Atos feeds the call routing, location, and text-to-911 information down to the regions and the relevant PSAP.

Entering the North America public safety market in 2002, Frost & Sullivan appreciates how Atos has planned meticulously for growth and strategically pursued state and local contracts—building relationships and the trust required to deliver as promised in public safety applications.

Reliable, Flexible, Scalable, and Upgradable

A crucial component of the Atos Cal OES contract win was the ability to build a flexible structure that is redundant and self-sufficient, so that no single system could potentially fail and bring down the entire state network. The solution design provides a dispersed model that is highly resilient with instant failover, backup, and restarts. Atos has hardened the public safety system to hold up during disasters and has empowered agencies to re-route 9-1-1 calls as needed, to minimize the 9-1-1 system downtime that plagues legacy infrastructures.

The flexibility enables innovative features to link more available information with the call itself compared to other alternative systems. For example, in California, for the OnStar system, Atos will serve as the connection for this originating service provider. Atos will interface with OnStar directly to receive a context-aware set of information through vehicle telematics and automatic crash notification and sends the data directly to the relevant responders—rather than simply forcing it on an analog 9-1-1 trunk with a maximum of 512 characters of information.

Moreover, Atos designed its NG9-1-1 platforms to enable integration with other 911 technologies and future upgrades (such as multimedia) over secure IP connections. The upgradable infrastructure allows decision-makers to lower the total cost of ownership (TCO) over the lifetime of an Atos managed NG9-1-1 deployment. Frost & Sullivan notes that Atos's solutions facilitate a variety of configurations, as the needs and requirements can vary significantly between states and amongst localities.

Conclusion

Atos is driving NG9-1-1 progress across the United States (US), most notably with their deployment in the State of California. Frost & Sullivan believes the next 12 to 24 months to be the most critical time for state and local 9-1-1 administrators to identify and secure the appropriate partners for their NG9-1-1 implementations. Success will rely on identifying partners with flexible platforms that support multiple endpoints and can negotiate the delivery of optimal solutions that are highly resilient with instant failover and backup services.

In this environment, Frost & Sullivan analysts conclude that Atos is properly moving US public safety forward by accelerating the transition from legacy 9-1-1 to Next Generation 9-1-1 (NG9-1-1) and providing a fully managed end-to-end managed solution over a single platform.

As the public safety industry transitions from legacy 9-1-1 to NG9-1-1, Atos has emerged as a growth accelerator, driving market adoption with its NG9-1-1 solutions. With its strong overall performance, Atos earns the 2020 Frost & Sullivan Growth Excellence Leadership Award.

Significance of Growth Excellence Leadership

Growth Excellence Leadership is about inspiring customers to purchase from a company and then return time and again. In a sense, then, everything is truly about the customer. Making customers happy is the cornerstone of any successful, long-term growth strategy. Companies that excel in driving growth strive to be best in class in three key areas: meeting customer demand, fostering brand loyalty, and carving out a unique and sustainable market niche.



Understanding Growth Excellence Leadership

Companies that creatively and profitably deliver value to customers ultimately set up their businesses for long-term, rapid growth. This is what Growth Excellence Leadership is all about: growth through customer focus, fostering a virtuous cycle of improvement and success.

Key Benchmarking Criteria

For the Growth Excellence Leadership Award, Frost & Sullivan analysts independently evaluated Growth Performance and Customer Impact according to the criteria identified below.

Growth Performance

Criterion 1: Growth Strategy

Requirement: Executive team has a shared vision for the organization's growth and has created and implemented a strategy that is consistent with that vision.

Criterion 2: Above-market Growth

Requirement: Company's growth rate exceeds the industry's year-over-year growth rate.

Criterion 3: Share of Wallet

Requirement: Customers allocate a greater percentage of their total spend to purchasing products or services produced by the company.

Criterion 4: Growth Diversification

Requirements: Company is equally able to pursue organic (e.g., distribution channel optimization, new product innovation) and inorganic (e.g., acquisitions, partnerships) growth opportunities consistent with the long-term objectives of the organization.

Criterion 5: Growth Sustainability

Requirement: Company has consistently sought opportunities for growth, enabling the organization to build on its base and sustain growth over the long term.

Customer Impact

Criterion 1: Price/Performance Value

Requirement: Products or services offer the best value for the price, compared to similar offerings in the market.

Criterion 2: Customer Purchase Experience

Requirement: Customers feel they are buying the optimal solution that addresses both their unique needs and their unique constraints.

Criterion 3: Customer Ownership Experience

Requirement: Customers are proud to own the company's product or service and have a positive experience throughout the life of the product or service.

Criterion 4: Customer Service Experience

Requirement: Customer service is accessible, fast, stress-free, and of high quality.

Criterion 5: Brand Equity

Requirement: Customers have a positive view of the brand and exhibit high brand loyalty.

Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate Award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 Monitor, target, and screen	Identify Award recipient candidates from around the globe	<ul style="list-style-type: none"> Conduct in-depth industry research Identify emerging sectors Scan multiple geographies 	Pipeline of candidates who potentially meet all best-practice criteria
2 Perform 360-degree research	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> Interview thought leaders and industry practitioners Assess candidates' fit with best-practice criteria Rank all candidates 	Matrix positioning of all candidates' performance relative to one another
3 Invite thought leadership in best practices	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> Confirm best-practice criteria Examine eligibility of all candidates Identify any information gaps 	Detailed profiles of all ranked candidates
4 Initiate research director review	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> Brainstorm ranking options Invite multiple perspectives on candidates' performance Update candidate profiles 	Final prioritization of all eligible candidates and companion best-practice positioning paper
5 Assemble panel of industry experts	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> Share findings Strengthen cases for candidate eligibility Prioritize candidates 	Refined list of prioritized Award candidates
6 Conduct global industry review	Build consensus on Award candidates' eligibility	<ul style="list-style-type: none"> Hold global team meeting to review all candidates Pressure-test fit with criteria Confirm inclusion of all eligible candidates 	Final list of eligible Award candidates, representing success stories worldwide
7 Perform quality check	Develop official Award consideration materials	<ul style="list-style-type: none"> Perform final performance benchmarking activities Write nominations Perform quality review 	High-quality, accurate, and creative presentation of nominees' successes
8 Reconnect with panel of industry experts	Finalize the selection of the best-practice Award recipient	<ul style="list-style-type: none"> Review analysis with panel Build consensus Select recipient 	Decision on which company performs best against all best-practice criteria
9 Communicate recognition	Inform Award recipient of Award recognition	<ul style="list-style-type: none"> Present Award to the CEO Inspire the organization for continued success Celebrate the recipient's performance 	Announcement of Award and plan for how recipient can use the Award to enhance the brand
10 Take strategic action	Upon licensing, company is able to share Award news with stakeholders and customers	<ul style="list-style-type: none"> Coordinate media outreach Design a marketing plan Assess Award's role in future strategic planning 	Widespread awareness of recipient's Award status among investors, media personnel, and employees

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry participants and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best-in-class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.