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BEST PRACTICES

AWARDS

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2019 BEST PRACTICES AWARD

AT&T Business

2019 UNITED STATES PUBLIC SAFETY SOLUTIONS COMPANY OF THE YEAR AWARD

Contents

Background and Company Performance

Industry Challenges

Evolving consumer behaviors, driven by technology innovation, have created a variety of unique challenges for the public safety sector in the United States (US). Frost & Sullivan projects that nearly 90% of emergency 9-1-1 calls will originate from mobile devices by the end of 2020. Moreover, the proliferation of next generation networks and devices has led to a dramatically more diverse set of Internet protocol (IP)-based consumer communication exchanges including text, data, photos, and video. As the dramatic pace of innovation has transformed consumer behaviors, a game-changing public safety paradigm shift is imminent in the US.

The public safety market has traditionally been characterized by rapidly changing technology, evolving industry standards, dynamic customer demands, and sluggish new product and service introductions. Public safety entities are now challenged to keep up with the pace of innovation. In today's environment, it will be critical to improve the speed to market, performance, and reliability of public safety products, services, and solutions as the demands of the market evolve.

Importantly, public safety solution providers must work with stakeholders to clear obstacles impeding the path to replacing legacy systems with next generation, cloud-based platforms. The roadblocks range from poorly designed legacy architectures, to a lack of funding, and other public-policy issues. Stakeholders must unite to identify creative funding models and eliminate the mix of incompatible platforms and standards that currently exists within the ecosystem.

In this environment, AT&T has proactively identified and addressed industry challenges and introduced an array of innovative solutions that will significantly expand public safety capabilities, enhance incident intelligence, and drive growth opportunities for an increasing number of stakeholders throughout the ecosystem.

Visionary Innovation & Performance and Customer Impact of AT&T

**Leading the Way in the Public Safety Solutions Industry**

AT&T is at the forefront for providing industry-leading public safety solutions that modernize public safety communications and transform emergency reporting and response. By leveraging proven experience and technological know-how in developing innovative public safety solutions, AT&T outpaces its competitors and maintains a distinguished reputation among customers.

Frost & Sullivan research indicates the AT&T's versatile and in-depth knowledge of public safety trends and requirements has enabled the company to detect unmet customer needs, and proactively address them with innovative solutions that cater to today's evolving technologies, products, and consumer behaviors. By introducing solutions that enhance responsiveness, drive efficiency, and increase reliability, the company is well-poised to continue to increase its share of the public safety solutions market.

Enabling Effective Public Safety Solutions

Frost & Sullivan research indicates that AT&T is currently the leading enabler of public safety solutions in the US, helping public safety entities advance emergency communication services which, ultimately, create safer, smarter and stronger communities. With FirstNet and the AT&T Emergency Services IP Network (AT&T ESInet), the company is well-positioned to continue to lead the US public safety sector in years to come.

Convergence of FirstNet and NG9-1-1 Triggers Paradigm Shift in Public Safety
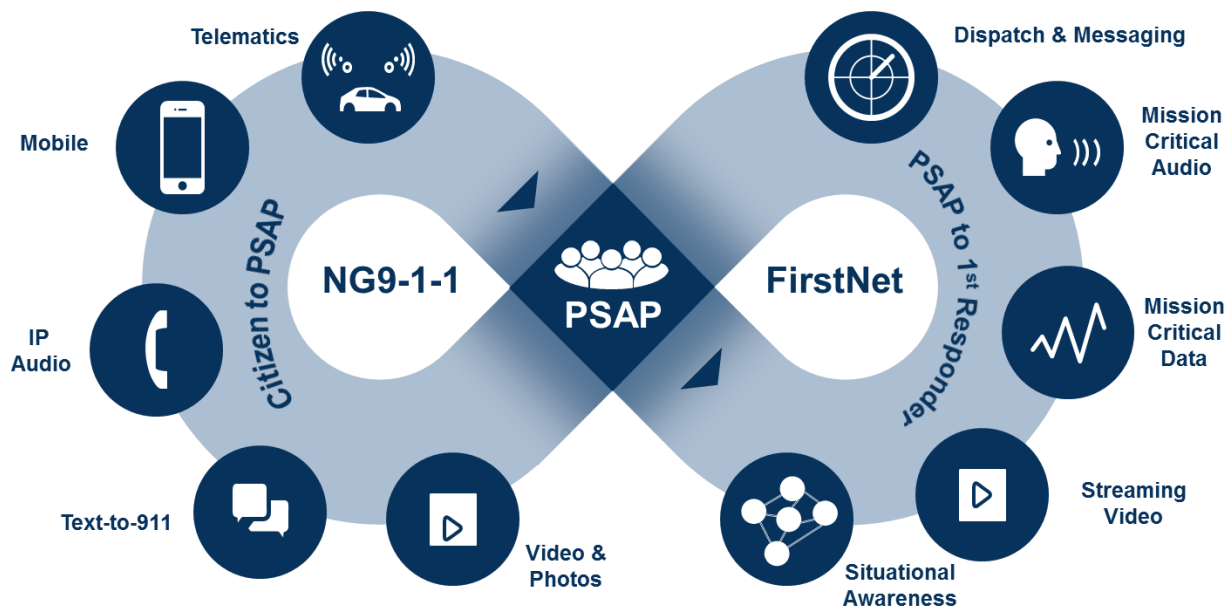
Source: Frost & Sullivan

The convergence of FirstNet and ESInet solutions (as depicted above) enables an ecosystem where citizens can send IP-based communications (i.e. text, photo, video, multimedia, etc) to personal safety answering points (PSAPs), that can then efficiently consolidate and forward this information to the appropriate first responders, dramatically improving emergency responses. AT&T is at the forefront of these critical initiatives— driving deployments and accelerating adoption across the US

Advancing First Responder Capabilities with FirstNet

In March 2017, AT&T was awarded a 25 year, $6.5 billion contract by FirstNet to deploy and manage a nationwide network for public safety. FirstNet is a highly secure network, exclusively dedicated to the public safety sector, now used by over 7,250 public safety agencies nationwide, representing more than 600,000 connections. The FirstNet network provides first responders and public safety institutions with unparalleled capabilities to enhance situational awareness, supporting the exchange of critical data to emergency responders at rates approximately 25% faster than any current commercial network.

With FirstNet, first responders get dedicated access to exclusive 700MHz wireless spectrum which provides broad coverage in both rural and urban areas, as well as robust in-building penetration. The network offers unparalleled security in line with the highest public safety standards by providing a dedicated security operations center to monitor and address threats. The solution relies on a multilayer approach to firewalls, encryption, threat management, devices, and private network connections, ensuring the highest grade protection of critical data and applications on the network.

Moreover, AT&T's FirstNet solution provides public safety agencies with a 'hub' to centrally manage, control, and monitor FirstNet network activity, operations, and site conditions. As a result, customers can manage user accounts and devices while monitoring 24/7 network status. Currently, over 90 devices have been tested and approved for use over the FirstNet network. Of these, approximately 50 are 'FirstNet Ready, ™' which indicates they also support access to Band 14 (note: Band 14 spectrum has now been deployed in over 600 markets nationwide). Additionally, over 50 apps (iOS and Android) are now available in the FirstNet catalog. Frost & Sullivan expects this number to increase substantially as AT&T recently introduced new tools such as the *FirstNet Single Sign-On Software Development Kit (SDK),* allowing developers to integrate FirstNet Single Sign-On directly into their applications.

Finally, the company has at its disposal a network of FirstNet Customer Service Centers across the US, which provide around-the-clock service, combining text, technical, ordering support, and emergency prompting and routing available in case of emergencies.

Transforming Emergency Communications with NG9-1-1

In 2011, the National Emergency Number Association (NENA) approved a framework of core technical guidelines for the implementation of 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 E9-1-1 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.
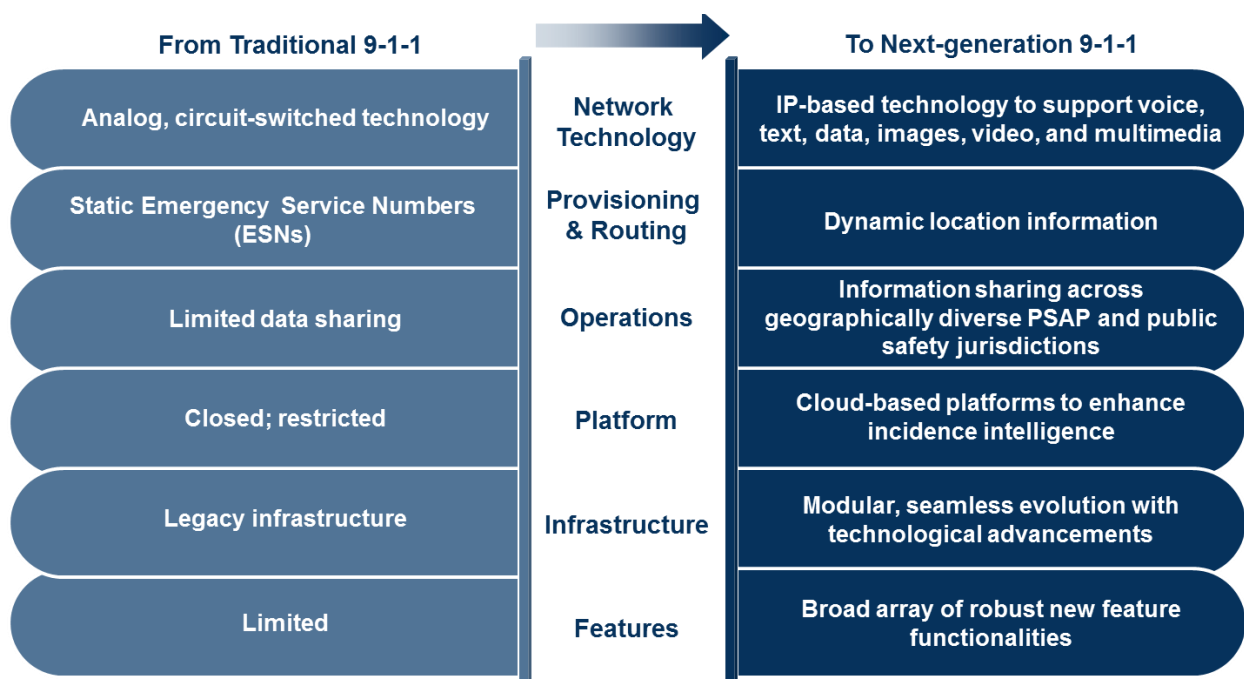
Currently, only about 20% of PSAPs across the US are equipped to handle text-to-9-1-1 messages from mobile devices. Although NG9-1-1 is still in the early adopter stage, as standards have become more clear, there has been momentum in the number of statewide and local NG9-1-1 request-for-proposals. In this environment, AT&T's NG9-1-1 ESInet solution enables public agencies to modernize their legacy TDM (time-division multiplexing) circuits with IP-based networks, supporting rapid processing of text messaging and advanced IP based communications. Frost & Sullivan research indicates that AT&T's ESInet fully integrated solution is accelerating the transition to NG9-1-1 by reducing complexity for PSAPs and ensuring new forms of communications route efficiently and securely to the appropriate PSAP.

The solution provides a nationally distributed, geographically diverse and redundant service architecture designed to enhance the customer service experience. AT&T has a

nation-wide network of data centers co-located with existing 9-1-1- databases across the US, which provide pre-deployed call processing (with the capacity to support twice the current volumes). Moreover, the company's solution allows PSAPs to handle unexpected call volumes by automatically redistributing these calls to neighboring PSAPs.

AT&T's ESInet solution consists of multi-layered network security, which allows users to minimize risks and disruption by integrating encryption, firewalls, and intrusion detection and prevention. Finally, the solution is backed by standard service level agreements (SLAs) for availability, call delivery, call quality, and provisioning. This approach provides customers with a consistent and reliable experience for predictable provisioning and implementation.

AT&T Accelerates Transition of Legacy 9-1-1 to NG9-1-1

From Traditional 9-1-1		To Next-generation 9-1-1
Analog, circuit-switched technology	Network Technology	IP-based technology to support voice, text, data, images, video, and multimedia
Static Emergency Service Numbers (ESNs)	Provisioning & Routing	Dynamic location information
Limited data sharing	Operations	Information sharing across geographically diverse PSAP and public safety jurisdictions
Closed; restricted	Platform	Cloud-based platforms to enhance incidence intelligence
Legacy infrastructure	Infrastructure	Modular, seamless evolution with technological advancements
Limited	Features	Broad array of robust new feature functionalities

Source: Frost & Sullivan

Examples of Successful Application of AT&T's Public Safety Solutions

AT&T continues to expand its influence in the public safety solutions market by supporting public safety agency transitions towards IP-based networks and equipment. For example, in August 2019, the Indiana Statewide 9-1-1 Board selected AT&T to upgrade its legacy 9-1-1 systems throughout the state. It selected AT&T's ESInet call-routing platform to help the state's PSAPs to handle IP based communications from mobile devices. Moreover, the company's solution has helped Indiana's 9-1-1 Board support alternative routing to neighboring PSAPs by providing backup support for overloaded PSAPs at peak times or during mass emergencies.

Conclusion

AT&T has proactively driven visionary innovation in public safety by introducing 'smart' solutions that cater to the evolving demands of both citizens and public safety entities. In particular, FirstNet, the only dedicated communications network purpose-built for public safety, provides first responders with a reliable, highly secure network that enhances situational awareness for first responders. Moreover, AT&T's national ESInet solution equips public safety answering points with the tools to support multiple modes of communication including texts, photos, and video. Thus, AT&T prepares PSAPs for the future by delivering innovative solutions that will transform the way citizens and public safety entities report, react, and respond to emergency situations, ultimately leading to safer, smarter, and stronger communities.

For its strong overall performance in the public safety sector, AT&T is recognized with Frost & Sullivan's 2019 US Company of the Year Award for public safety solutions.

Significance of Company of the Year

To receive the Company of the Year Award (i.e., to be recognized as a leader not only in your industry, but among non-industry peers) requires a company to demonstrate excellence in growth, innovation, and leadership. This excellence typically translates into superior performance in three key areas—demand generation, brand development, and competitive positioning—that serve as the foundation of a company's future success and prepare it to deliver on the 2 factors that define the Company of the Year Award: Visionary Innovation and Performance, and Customer Impact).

Understanding Company of the Year

Driving demand, brand strength, and competitive differentiation all play critical roles in delivering unique value to customers. This three-fold focus, however, must ideally be complemented by an equally rigorous focus on Visionary Innovation and Performance to enhance Customer Impact.

Key Benchmarking Criteria

For the Company of the Year Award, Frost & Sullivan analysts independently evaluated each factor according to the criteria identified below.

Visionary Innovation & Performance

Criterion 1: Addressing Unmet Needs

Requirement: Implementing a robust process to continuously unearth customers' unmet or under-served needs, and creating the products or solutions to address them effectively

Criterion 2: Visionary Scenarios through Mega Trends

Requirement: Incorporating long-range, macro-level scenarios into the innovation strategy, thereby enabling "first-to-market" growth opportunity solutions

Criterion 3: Implementation of Best Practices

Requirement: Best-in-class strategy implementation characterized by processes, tools, or activities that generate a consistent and repeatable level of success.

Criterion 4: Blue Ocean Strategy

Requirement: Strategic focus on creating a leadership position in a potentially "uncontested" market space, manifested by stiff barriers to entry for competitors

Criterion 5: Financial Performance

Requirement: Strong overall business performance in terms of revenues, revenue growth, operating margin, and other key financial metrics

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 most 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	• 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	• 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	• 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	• 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	• 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	• 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	• 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	• Review analysis with panel • Build consensus • Select winner	Decision on which company performs best against all best-practice criteria
9	**Communicate recognition**	Inform Award recipient of Award recognition	• 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 able to share Award news with stakeholders and customers	• 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.