

Brooks T. Shannon, ENP

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PROFESSIONAL PROFILE

- Internationally recognized 9-1-1, public safety, and GIS subject matter expert with a focus on location accuracy, location validation, geospatial emergency call routing, indoor mapping, school safety, and the extension of these technologies into Computer-Aided Dispatch and first responder systems
- 22 years in the public safety, 9-1-1, and Geographic Information System (GIS) industries
- 12 years of experience professionally developing commercial off-the-shelf and custom software applications
- 10 years of experience implementing 9-1-1 tactical mapping systems at customer sites, training users, and gathering software requirements through face-to-face meetings and first-person user observation
- 8 years of professional product management experience and Pragmatic Marketing Certified - Level Three (PMC-III)
- 12 years' experience regularly presenting to local, state, national, and international audiences, with a focus on cutting-edge public safety, NG9-1-1, location accuracy, and GIS topics
- Member of the Make Our Schools Safe Advisory Board
- Vice Chair of the EENA Tech & Ops Committee; lead author of the EENA 112 Indoors: Improving Emergency Response with Indoor Location and Indoor Maps document
- Active contributor to industry standards through NENA and APCO workgroup participation since 2010: co-chair of the NENA Development Steering Council (DSC) Data Structures Committee for 6 years, overseeing NG9-1-1 GIS Data Model and related location standards such as the Civic Location Data Exchange Format (CLDXF). Current co-chair of the NENA Utilization of GIS Data in Next-Generation Core Services and Indoor Mapping working groups. Vice Chair of the APCO Common CAD GIS Identifiers working group, co-chaired the NENA Location Validation Consistency working group, and NENA Industry Collaboration Events (ICE) 7 and 9; member of the NENA ICE Steering Committee, and member and guest contributor to additional industry working groups, including location accuracy and data interoperability efforts led by the National 911 Program and EENA technical document development on GIS for NG112
- Member of the Safer Buildings Coalition (SBC) School Safety Work Group
- Co-chaired the first-ever transatlantic NG9-1-1/NG112 interoperability test - the NENA ICE 9 event held in conjunction with the EENA/ETSI (European Telecommunications Standards Institute) PlugTests #4 event, and played a leading role in designing test cases that involved wireless carriers and international call routing for the first time
- Regular participant in NENA ICE events since 2010, and participated in the first-ever EENA/ETSI Next-Generation 112 Plugtest in Sofia-Antipolis, France in 2016
- Prior to working at Esri, maintained a close relationship with Esri and a deep knowledge of the ArcGIS platform through regular participation in Esri's partner, developer, and user conferences since 2004, and by serving as technical representative for Esri business partners for 20 years

PROFESSIONAL EXPERIENCE

Esri

Director of Emergency Communications Solutions

Redlands, California

October 2023 – Present

- Support the global emergency communications market, a horizontal public safety industry at Esri that encompasses emergency call-taking (9-1-1, 1-1-2, etc.), dispatching of the appropriate first responders, and routing of emergency resources.
- Act as the emergency communications thought leader and subject matter expert for Esri, helping Esri users and the Esri partner community understand and apply mapping and spatial analysis to solve complex problems, advance system interoperability, and implement GIS best practices to improve outcomes.
- Represent Esri within industry associations such as NENA, APCO, EENA, iCERT, SBC, and the National States Geographic Information Council (NSGIC).
- Liaise with regulatory bodies such as the Federal Communications Commission and federal, state, and local governments to remain current on, and assist with, regulatory and legislative actions pertinent to emergency communications.
- Work directly with members of Congress to advocate for legislation that supports the use of GIS in emergency communications and the advancement of NG911, including Alyssa's Act (H.R. 6809).
- Lead thought leadership exercises such as local, state, national, and international conference exhibits and presentations, and the production of collateral such as whitepapers, blog posts, webinars, and more to drive awareness and adoption of Esri technology and services within emergency communications.

National Emergency Number Association

Interoperability Program Manager

Alexandria, Virginia

January 2022 – October 2023

- Developed and managed a revenue neutral business model for 9-1-1 and NG911 interoperability programs overseen by the NG9-1-1 Interoperability Oversight Commission (NIOC).

- Provided staff support to NIOC, including sales, marketing and program management, contract administration, and direct communication with stakeholders.
- Responsible for increasing Forest Guide connections and credentials issued through the PSAP Credentialing Agency (PCA).
- Acted as liaison with NENA and the NENA Development Group with respect to NIOC activities
- Publicly represented NIOC and its interests at international conferences and meetings with industry partners.
- Managed the Enhanced PSAP Registry and Census (EPRC), the geospatial database of PSAP contact information used by PSAPs and commercial partners across the United States during emergency call transfer situations.
- Administered related EPRC vendor activities and contracts.
- Responsible for selling and direct marketing of the EPRC to private and public sector entities.
- Established the annual EPRC budget and sales targets, working with NENA executive leadership and the NENA Board of Directors to attain approval and report progress made towards sales goals.
- Managed the negotiation of service contracts for enterprise EPRC integrations.
- Responsible for overall strategic planning for NENA Interoperability programs.
- Responsible for development, testing, production, evaluation, content review, and revision of the NENA Interoperability programs.
- Represented NENA within the NENA Development Group as co-chair of working groups and committees, and within the NENA Industry Collaboration Events (ICE) program as an ICE Steering Committee member.
- Assisted with NENA's filings with the Federal Communications Commission (FCC) and other legislative initiatives as assigned.

RapidDeploy

Austin, Texas

Vice President of GIS

March 2020 – December 2021

- Managed GIS strategy across all product lines.
- Managed internal GIS processes and services, including overall internal product responsibility for Apple, Google, and OnStar partnership data processes.
- Served as internal subject matter expert on GIS, E9-1-1, and NG9-1-1.
- Acted as subject matter expert in sales engineering and customer success engagements.
- Served as technical and product executive lead for the RapidDeploy and Esri partnership.
- Cultivated partnerships with location providers, location based services and content providers, and with GIS platform and services providers.
- Continued NG9-1-1 and GIS industry representation and thought leadership work, through standards body work, speaking engagements, whitepapers and blog posts, articles and interviews, and by chairing industry events such as NENA ICE 9.

Vice President of Product Management

July 2018 – March 2020

- Led product management activities across all lines of business - Computer Aided Dispatch, PSAP Mapping, Analytics, and the early beginnings of Telephony.
- Grew the Product Management team from two to a team of eleven across the 120 employee organization, with staff in both our Cape Town and Austin offices.
- Personally led the creation of Radius, RapidDeploy's PSAP Mapping solution, oversaw the inception of the Analytics line of business, and helped with the company's early stages of research and development in text and voice call handling.
- Enabled dramatic go-to-market expansion with channel partner AT&T across state opportunities like California, Kansas, and Arizona followed by Kentucky and Tennessee, and regional opportunities like NCT9-1-1. As of August 2021, these beachhead products help protect over 65 million people in the United States, with over 20 million more to be served within the next 6 to 12 months.
- Represented the company at industry events, such as conferences and tradeshows, and served as one of two key NG9-1-1 thought leaders for the company.
- Remained active within industry organizations, such as NENA and APCO, by leading and participating in working groups to develop standards and informational documents pertaining to NG9-1-1 and emergency response.

INdigital

Fort Wayne, Indiana

Vice President of NG Core Services Product Development

July 2017 – July 2018

- Lead product management activities across the full suite of INdigital Next-Generation 9-1-1 (NG9-1-1) Core Services and related products. Acting as a NG9-1-1 subject matter expert, I channel market feedback and opportunities into INdigital's development teams to create innovative and compelling products for our users and business partners.
- Lead two software development teams – one in the United States, the other in Spain. I work to foster a team culture and bring consistency and structure to the development organization through the implementation of Agile, Scrum, and Kanban processes to increase software quality and speed to market, while improving the organization's ability to measure and predict our capacity and add accountability.
- Represent the company at industry events, such as conferences and tradeshows.
- Remain active within industry organizations, such as NENA and APCO, by leading and participating in working groups to develop standards and informational documents pertaining to NG9-1-1 and emergency response.

GeoComm

Senior Product Manager

St. Cloud, Minnesota

August 2013 – July 2017

- Lead product management activities, along with two other Senior Product Managers, across GeoComm's three lines of business. Remained strategic while tackling the practical, tactical mission of ensuring software is developed on time with high quality. Helped deliver a major, multi-million dollar state-wide Next-Generation 9-1-1 system on time, earning high customer praise, and helped manage GeoComm product portfolio by auditing and eliminating weak performers and non-strategic solutions that did not align with GeoComm's vision, roadmap, and distinctive competencies.
- Regularly interviewed prospective and existing customers, both remotely and face-to-face, to develop user and buyer personas, understand market needs, and cultivate a personal relationship with representatives of key accounts. Documented and ranked product and service ideas, developed business cases, and conducted usability experiments and A/B tests to determine winning features and designs.
- Became solely responsible for product management within GeoComm's Next-Generation 9-1-1 Core Services line of business, a key strategic growth segment. GeoComm was one of the first companies in the world to route live 9-1-1 calls, in near real time, to emergency call centers using spatial analysis and GIS data, and continues to be a leader in this space.
- Responsible for leading disruptive innovation efforts. Created a new emergency call center mapping product for a key channel partner with differentiating features that no competitors had within the product's market segment. Assisted in leading business development efforts of 3D and indoor mapping projects, in conjunction with St. Cloud State University's Visualization Lab and Computer Science department.
- Lead sustaining innovation of existing products for 9-1-1 call and situational tactical mapping; GIS data creation, maintenance, and lifecycle management; and GeoComm's Next-Generation 9-1-1 spatial call routing system – a NENA and Internet Engineering Task Force (IETF) standards-compliant Emergency Call Routing Function / Location Validation Function (ECRF/LVF).
- Provided pre- and post-sales support to our proposals, sales, and executive leadership teams. Assistance was given internally during proposals, system design, and system acceptance phases, and externally when interviewing with prospective customers and gaining acceptance for projects.
- Lead cross-functional teams at all phases of the product life cycle, from initial project kick-off and product design, to release, to post-launch portfolio management activities. Notable successes included the launch of a new 9-1-1 call mapping application for a channel partner and the on-time delivery of a complex, statewide Next-Generation 9-1-1 project that included custom software development in multiple products.
- Was recognized as GeoComm's primary subject matter expert in Next-Generation 9-1-1, conducting numerous presentations at the local, regional, state, national, and international level on foundational topics such as the use of GIS data in Next-Generation 9-1-1; how Next-Generation 9-1-1 works at both high and low levels, and its real-world benefits; and how 3D and indoor mapping can reduce response times and will become the next frontier of GIS for emergency response.
- Remained highly involved with industry groups such as NENA, APCO, and EENA, co-chairing an industry workgroup, a system interoperability testing event, and participating in many other instances of both.

BullBerry Systems

Director of Software Development

Bismarck, North Dakota

August 2012 – July 2013

- Directed software development efforts within the company, leading our engineers and decomposing projects into feature sets and tasks suitable for agile-style development.
- Ensured that deadlines were met and company leadership was regularly updated on development status and activity.
- Assisted in product development, including requirements gathering, market analysis, and prototyping.
- Stayed active in standards committees, industry events, and technical conferences, working to stay on the leading edge of technology and help contribute to industry efforts.
- Served as the lead software architect and mentor to our team's other developers.
- Provided technical support for our sales team during pre- and post-sales operations.

Lead Software Engineer

October 2005 – August 2012

- Lead software engineer and designer of BullBerry Insight, the company's flagship product. Insight's user experience was designed largely in part from two years of first-hand user observation, and the application offered a natural and intuitive way for 9-1-1 dispatchers to quickly respond to incidents and manage emergencies.
- Co-architect and lead software engineer of the BullBerry Mapping Components for .NET, a SDK composed of coarse-grained components that allowed third parties to rapidly add mapping functionality to their desktop applications. Built on the Esri ArcGIS Engine Runtime, they offered the power of ArcObjects with much less development complexity.
- Designed and developed a web-based GIS data management tool used by the State of North Dakota Department of Emergency Services. The agency used the workflow-driven web application to maintain 9-1-1 service subscriber information, including the precise locations of street addresses. Built with Microsoft Silverlight and Esri ArcGIS Server 10.0.
- Co-developed BullBerry's ECRF/LVF, a functional element used to power Next-Generation 9-1-1 systems, accurately routing emergency calls to the appropriate PSAP using spatial data.
- Successfully performed nearly 100 project implementations. I was responsible for installing desktop and web-based applications and teaching training classes at PSAPs across the United States, as well as gathering feedback for future product enhancement.

Kadrmass, Lee, & Jackson**Lead Software Engineer***Bismarck, North Dakota**April 2003 – October 2005*

The company is a consulting engineering firm, specializing in transportation, telecommunications, civil, oil and gas, and airports. I was hired by their Airports group and later transitioned into their public safety division, BullBerry Systems.

- Architected and developed AirGIS Airspace Analysis, a commercial ArcMap and ArcScene extension that performed 2-D and 3-D analysis of obstruction and airspace information, allowing land-use planners and aviation officials to easily determine if physical structures impact nearby airports.
- Architected and developed R3Dispatch Gold Edition, a GIS-based application designed for 9-1-1 dispatchers to use as an aid in mapping the location of emergency incidents, dispatching, and routing emergency responders to sites quickly and easily. It offered automatic mapping of 9-1-1 calls; the generation of turn-by-turn driving directions; and used Esri-compatible GIS data, including shapefiles, file geodatabases, and enterprise ArcSDE geodatabases.
- Assisted in the implementation and maintenance of our R3Admin Tools product – a collection of ArcMap tools used by customers to maintain their own GIS datasets.
- Co-developed a voice-controlled GPS-based road centerline data collection application.

EDUCATION

North Dakota State University**Bachelor of Science in Computer Science, Minor in History***Fargo, North Dakota**May 2003*

- Tutor for the NDSU Computer Science Department
- Active in the campus chapters of the Association for Computing Machinery (ACM) and the Phi Alpha Theta National History Honor Society
- Summer internships with Cargill (Minnetonka, Minnesota) and West Group (now Thomson Reuters, Eagan, Minnesota)

PROFESSIONAL ASSOCIATIONS AND CERTIFICATIONS

- Emergency Number Professional (ENP)
- National Emergency Number Association (NENA)
- Association of Public-Safety Communications Officials (APCO)
- European Emergency Number Association (EENA)
- Safer Buildings Coalition (SBC)
- Industry Council Emergency Response Technologies (iCERT)
- Pragmatic Marketing Certified - Level Three (PMC-III)