

MARIA LUCENA

Director of Architecture | GraphQL Expert | Patent Holder

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PROFESSIONAL SUMMARY

Director of Architecture with 15+ years of experience building scalable API solutions, cloud-native systems, and enterprise architecture at Fidelity Investments. Holder of 2 U.S. patents in chatbot architecture with 1 pending for GraphQL Gateway-as-a-Service. GraphQL Summit speaker and community builder who certified 100+ developers and organized conferences with 600+ attendees. Expert in GraphQL Federation, AWS serverless architectures, and developer enablement platforms. Proven track record of reducing infrastructure complexity, accelerating team productivity, and delivering innovative solutions that transform enterprise-scale systems.

CORE COMPETENCIES

Architecture & APIs

GraphQL Federation, Apollo Gateway, REST APIs, Microservices, Domain-Driven Design

Cloud & Infrastructure

AWS (AppSync, Lambda, DynamoDB, S3), Kubernetes, Docker, Terraform, Serverless

Technologies

Node.js, TypeScript, Go, Vue.js, Python, GraphQL, CloudFormation

Leadership

Developer Enablement, Community Building, Technical Strategy, Team Mentorship

Platforms

Platform Engineering, Developer Experience, CI/CD (Jenkins, Concourse), Observability

Innovation

Patent Development, Research, RFC Processes, Standards Development

PROFESSIONAL EXPERIENCE

Director of Architecture

Fidelity Investments

Nov 2021 - Present

Raleigh, NC

- Co-authored patent-pending GraphQL Gateway-as-a-Service architecture reducing GraphQL adoption time from months to days for 20+ teams
- Architected turnkey GraphQL infrastructure handling **10M+ requests/day** with automated provisioning, federation, authentication, and monitoring
- Established **GraphQL Certification Program** certifying 100+ developers across multiple business units with comprehensive implementation guides
- Organized inaugural **GraphQL Day Conference** with 600+ attendees featuring workshops, talks, and networking, accelerating GraphQL adoption by 300% YoY
- Created RFC process democratizing GraphQL standards and schema design decisions, empowering engineers across the enterprise
- Speaker at **GraphQL Summit 2024 & 2022** on federating standards, schema design patterns, and enterprise architecture at scale

Lead Software Engineer - API Platform

Fidelity Investments

Jan 2020 - Oct 2021

Raleigh, NC

- Designed transparent multi-NLP integration system reducing **vendor onboarding time by 60%** (from 3 weeks to 5 days)
- Developed plugin-based architecture enabling integration of 4 major NLP vendors (AWS Lex, Nuance, custom solutions) without vendor lock-in
- Created reusable architectural patterns adopted by other teams, improving chatbot accuracy by 35% through multi-vendor approach
- Implemented comprehensive error handling and fallback mechanisms ensuring platform reliability and resilience

Senior Software Engineer - Chatbot Platform

Fidelity Investments

Dec 2018 - Dec 2019

Raleigh, NC

- Won 2 U.S. patents for innovative chatbot architecture (Session-Based Data Storage US11379446 & Bot Dialog Delegation US11966705B2)
- Developed core Node.js microservices for enterprise chatbot platform supporting **millions of customer interactions monthly** with 99.9% uptime
- Created GraphQL resolvers enabling secure access to distributed customer data across 15+ backend systems
- Reduced customer service response time by 70% through robust micro-processes enhancing platform modularity and extensibility
- Implemented comprehensive testing and CI/CD automation ensuring reliability and maintaining security/compliance standards

KEY PROJECTS & ACHIEVEMENTS

GraphQL Gateway-as-a-Service (Patent Pending)

PLATFORM

Turnkey GraphQL infrastructure service handling gateway provisioning, federation, auth, monitoring, and auto-scaling. Simplified adoption for 20+ teams, reducing setup from months to days. Centralized security and compliance with self-service capabilities.

GraphQL, Apollo Gateway, Kubernetes, Docker, AWS, Terraform, Prometheus, Grafana

Serverless GraphQL Research Platform

RESEARCH

Academic research validating serverless GraphQL patterns using AWS AppSync. Established foundational knowledge influencing enterprise GraphQL Gateway-as-a-Service patent. Demonstrated hybrid VTL/Lambda resolver strategies and Infrastructure as Code benefits. Published research at Tiffin University.

AWS AppSync, GraphQL, Vue.js, Lambda, DynamoDB, CloudFormation, Amplify, Lerna

Developer Platform & GraphQL Certification Program

COMMUNITY

Comprehensive certification program (Associate & Professional levels) with 100+ page implementation guide. 200+ attendees at GraphQL Day Conference. Established active community with weekly office hours, increasing GraphQL adoption by 300% year-over-year.

GraphQL, Education Platform, Community Tools, Documentation Systems

Multi-NLP Integration System

PLATFORM

Abstraction layer integrating multiple NLP vendors through common interface. Plugin architecture with comprehensive patterns, documentation, and error handling. Enabled A/B testing between vendors, improving accuracy by 35%.

Node.js, Microservices, GraphQL, Docker, Kubernetes, AWS Lambda, NLP APIs

PATENTS

GraphQL Gateway-as-a-Service Architecture

Patent Pending (2024) | Co-inventors: John Arnesen, Divya Mahajan, Krishna Bhupathi, Benjamin Dixon

Systems and Methods for Bot Dialog Delegation

US11966705B2 (Granted 2023) | Co-inventor: Allen Detmer

Session-Based Data Storage for Chat-Based Communication Sessions

US11379446 (Granted 2022) | Co-inventor: Allen Detmer

SPEAKING ENGAGEMENTS

A Request For Comment: Federating Standards at Fidelity

GraphQL Summit 2024 | New York, NY

600+ attendees | September 2024

Architecture to Adopt Apollo Federation

GraphQL Scale 2022 | Virtual

400+ attendees | November 2022

Scaling GraphQL Federation in the Enterprise

GraphQL Summit 2022 | San Diego, CA

500+ attendees | October 2022

AWS, GraphQL, Apollo-VueJS: Enterprise-Grade Applications

GeekGirls Virtual Event

300+ attendees | June 2022

EDUCATION

Master of Science in Computer Science

Tiffin University | 2020

Bachelor of Science in Information Technology

American InterContinental University | 2009