

SOURISH SENGUPTA

Software Engineering Technical Leader | Distributed Systems | Cloud-Native Platforms | AI/ML

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PROFESSIONAL SUMMARY

Software Engineering Technical Leader with 19+ years of experience architecting, scaling, and operating distributed and cloud-native systems across telecom, networking, and SaaS product companies. Proven experience driving technical direction for platforms managing 60,000+ network devices, processing peak volumes approaching one million GCP messages, and supporting large-scale customer deployments. Deep expertise in distributed systems, event-driven architectures, Kafka, Cassandra, Elasticsearch, Redis, Kubernetes, and cloud platforms, with a strong track record in scalability, performance optimization, production reliability, incident resolution, and customer-impacting technical problems. Experienced in leading cross-functional engineering initiatives, mentoring senior engineers, driving architecture and roadmap decisions, and translating complex technical problems into scalable solutions. Recent work extends this distributed-systems foundation into AI/GenAI, RAG, semantic search, LLM applications, and agentic workflows.

CORE TECHNICAL EXPERTISE

Distributed Systems & Architecture: Distributed Systems Design, Microservices Architecture, Event-Driven Architecture, Fault Tolerance, Scalability, High-Throughput Systems, Real-Time Data Pipelines, Configuration Reconciliation

Backend & Data: Java, Spring Boot, Apache Kafka, Cassandra, Elasticsearch, Redis, Spring Data Cassandra, REST APIs

Cloud & Infrastructure: Kubernetes, AWS, Docker, Auto-Scaling, SaaS Platform Design, API Gateway

Performance & Reliability: Production Troubleshooting, Root Cause Analysis, Performance Optimization, Concurrency, Failure Recovery, Operational Resilience, Data Recovery

Networking & Automation: Network Management, SNMP, SSH, TELNET, ICMP, CDP, DHCP, TFTP, PXE, Network Topology Discovery, Remote Command Execution

Leadership: Technical Leadership, Architecture Reviews, Technical Mentoring, Technical Hiring, Roadmap Planning, Cross-Functional Collaboration, Customer-Facing Engineering

AI / ML: RAG, Embeddings, Semantic Search, LLM Integration, Multimodal AI Pipelines, LangChain, OpenCV, AI-Assisted Engineering Workflows

PROFESSIONAL EXPERIENCE

CISCO SYSTEMS

Software Engineering Technical Leader — SmartPHY Platform

2020 – Present

- Technical leader for SmartPHY, a cloud-native network management platform, driving architecture and engineering evolution through the transition of product ownership from the US team to India.
- Drove platform scalability from fewer than 10,000 to approximately 60,000 RPDs across ~300 cBR-8 routers, supporting peak volumes approaching one million GCP messages through improvements across Kafka processing, service concurrency, data access, Kubernetes deployment, and autoscaling.
- Architected and evolved distributed microservices using Java/Spring Boot, Kubernetes, Kafka, Cassandra, Elasticsearch, and Redis, addressing scalability, performance, reliability, and operational requirements.
- Architected a Kafka-driven Cassandra-to-Elasticsearch synchronization pipeline that reduced dashboard load time for approximately 12,000 RPDs from ~20 seconds to ~2 seconds, significantly improving search, filtering, and pagination performance.
- Designed and delivered a distributed Configuration Reconciliation capability spanning approximately 50,000 RPDs and 300 routers, enabling customers to detect long-standing configuration drift and safely remediate missing configurations.
- Improved SmartPHY provisioning from several minutes to typically 30–45 seconds, while improving failure visibility and operator understanding of provisioning issues.

- Led resolution of customer-critical production incidents across organizational boundaries. For a major customer outage, analyzed customer memory/heap data, identified a recurring pod crash in collaboration with the owning Cisco team, and helped deliver a patched SmartPHY build.
- Took ownership of a customer data-recovery crisis involving an unresilient cluster and absent database backups; drove recovery and subsequently introduced automated periodic backups, separate backup storage, and proactive license-expiry alerts to prevent recurrence.
- Developed safe production-data correction scripts for customer environments, reducing manual intervention while minimizing risk to unrelated data and functionality.
- Led a broader SmartPHY engineering organization of approximately 40 engineers across application, platform, and UI engineering, while directly leading approximately 10 engineers with emphasis on technical ownership, mentoring, engineering quality, and delivery.
- Partnered with Product and cross-functional engineering teams on multi-phase roadmap delivery spanning provisioning, monitoring, configuration visibility, reconciliation, and service workflows.
- Currently driving an AI-assisted SmartPHY operational experience using RAG to combine product knowledge and operational data, enabling natural-language queries and exploring agentic root-cause-analysis workflows.

CLouDFABRIX

Team Lead

2014 – 2020

- Worked across the product lifecycle for network and application discovery and monitoring platforms, making products SaaS-ready and deploying them on AWS.
- Designed and developed an edge discovery platform capable of discovering 15,000+ devices across customer networks using ICMP, CDP, TELNET, SNMP, and SSH.
- Built distributed network-boot prototypes using PXE, DHCP, and TFTP, and contributed to the Macaw microservices platform underpinning CFX products, including API gateway and autoscaling capabilities.
- Built and led a team comprising both experienced and early-career engineers and supported field engineering teams during customer deployments.
- Worked directly with customers and traveled to the United States for technical design discussions and requirements gathering.

CISCO SYSTEMS

Software Engineer

Apr 2012 – Jun 2014

- Developed and maintained CSPC and NCCM products, owning both backend and UI responsibilities.
- Built backend capabilities for remote command execution and management of network elements including switches and routers.
- Built a low-latency UI framework for visualizing network data and performing operational workflows.
- Rapidly onboarded onto existing systems and contributed to technical hiring and team development.

SUBEX LIMITED

System Analyst

Jun 2007 – Mar 2012

- Core member of the framework/R&D team responsible for designing and developing the platform underlying Subex's revenue maximization products, including Moneta, Optima, and Concilia.
- Delivered end-to-end architecture and implementation of framework capabilities, including GWT adaptor frameworks and JSNI wrappers for mxGraph, OpenJacob Draw2d, and FusionChart.
- Designed and built composite UI components and server-side processing capabilities for large datasets driven by user configuration.
- Optimized browser-side rendering to display approximately one million records with a low memory footprint.
- Trained, mentored, and guided engineering teams in adopting the new platform.

- Received the Subex Star Award multiple times for high-impact contributions to the ROC RA (Moneta) product.

SELECTED AI / GENAI CONTRIBUTIONS

- Built AI-assisted applications and prototypes using LangChain and OpenAI APIs, including Retrieval-Augmented Generation with embeddings and enterprise knowledge sources.
- Applied prompt engineering, LLM orchestration, and AI-agent concepts to engineering automation, intelligent workflows, and root-cause-analysis use cases.
- Designed and implemented a multimodal AI pipeline using OpenCV for video-frame extraction, combining visual context with speech transcripts for LLM-based meeting summarization.
- Built a semantic-search layer using embeddings and RAG to support natural-language queries over meeting discussions.

RECOGNITION & AWARDS

- Multiple Cisco Connected Recognition Awards (2024–2026) for critical bug fixes, feature delivery, and technical impact, including Drive Durable Growth, Getting to the Finish Line, and Play to Win.
- Subex Star Award — multiple-time recipient for high-impact contributions to the ROC RA (Moneta) platform.
- 1st Prize, Coding Competition, NIT Durgapur.
- 3rd Prize, Programming Competition, IEM Kolkata.

EDUCATION

Master of Technology, Data Science — BITS Pilani, 2023

Master of Science, Software Systems — Cloud Computing — Manipal University, 2012 | 91.2%

Bachelor of Technology, Computer Science & Engineering — St. Thomas College of Engineering & Technology, 2007 | 81.2%

SELECTED SCALE & IMPACT

60K+ RPDs managed across ~300 cBR-8 routers	~1M GCP messages at peak platform volume	~90% Dashboard latency reduction (20s → 2s)	50K RPDs covered by config reconciliation	15K+ Devices supported by discovery platform
~40 Engineers led across application, platform, and UI engineering		1M Records rendered efficiently in browser in earlier large-data platform work		