CHANDRA SEKHAR TRIPATHY

Principal Technical Architect · GenAI & Agentic AI Solutions · Cloud Architecture · SRE · Security

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PROFILE SUMMARY

18+ yrs Enterprise Arch Cloud · SRE · AI/ML	**MCP Pioneer · Agentic AI** 60% Ops Reduction	**40% Cost Cut · 99.9% SLA** SOC2 · ISO 27001 Certified

Strategic Principal Architect and SRE with 18+ years designing enterprise-grade cloud architectures, agentic AI systems, and resilient infrastructure for regulated industries. Early adopter and production implementer of Model Context Protocol (MCP) — the emerging universal standard for AI-tool integration now backed by Anthropic, OpenAI, and Google. Pioneered AgentOps practices including multi-agent observability, reasoning trace capture, guardrail enforcement, and agent drift detection. Technology evangelist who translates complex AI/ML architectures into measurable business outcomes: 40% infrastructure cost reduction, 60% manual operations eliminated, 99.9% uptime across 1M+ daily transactions, and zero security breaches across SOC2/ISO 27001 regulated environments. Proven ability to define non-functional requirements, assess architectural risks, mentor high-performing engineering teams, and champion emerging technologies to deliver long-term enterprise advantage.

AGENTIC AI & GENAI EXPERTISE SNAPSHOT

Architecture Patterns

- ◆ ReAct (Reason + Act) loops, Tree-of-Thought planning
- ◆ Multi-agent orchestration with LangGraph state machines
- ◆ MCP Host/Client/Server design & custom MCP server builds
- ◆ RAG pipelines with vector stores (Pinecone, FAISS, PgVector)
- ◆ Dual-path RAG + tabular ML for structured/unstructured data

AgentOps & Governance

- ◆ Agent lifecycle mgmt: monitoring, evaluation, governance
- ◆ Reasoning trace capture, session replay, agent drift detection
- ◆ Guardrail design: bounded autonomy, escalation thresholds
- ◆ Token-level cost visibility and LLM spend optimization
- ◆ Context engineering for high-fidelity agent instruction design

Frameworks & Tooling

- ◆ LangChain · LangGraph · LlamaIndex · CrewAI · AutoGen
- ◆ OpenAI Agents SDK · Anthropic Claude API · AWS Bedrock
- ◆ FastMCP · N8N · Agno · Langflow for workflow automation
- ◆ LangSmith / AgentOps for observability & debugging

Models & Platforms

- ◆ GPT-4o / o3 · Claude 3.7 Sonnet · Gemini 2.5 Pro
- ◆ DeepSeek R1 · Llama 4 · Mistral · Ollama (local inference)
- ◆ AWS Bedrock · Vertex AI · Azure AI Studio
- ◆ GitHub Copilot · Claude Code · Cursor IDE (AI-native dev)

PROFESSIONAL EXPERIENCE

Principal Technical Architect & SRE | Electrum (Pick My Solar India Pvt. Ltd.) *July 2023 – Present*

Company rebranded to Solar.com in Sep 2024 · Hyderabad, India

- ▸ **Agentic AI Architecture:** Designed production agentic AI systems integrating ReAct reasoning loops, multi-step tool orchestration, and autonomous workflow execution using AWS Bedrock and Claude API — reducing manual operations by 60%
- ▸ **MCP Implementation:** Built custom Model Context Protocol (MCP) servers enabling LLMs to natively interact with AWS infrastructure, Bitbucket pipelines, and internal tooling — one of earliest enterprise MCP adopters in production (pre-standard)
- ▸ **AgentOps & Observability:** Established AgentOps practices: reasoning trace logging, agent session replay, guardrail enforcement, and token-cost dashboards; integrated agent telemetry with DataDog for unified AI + infra observability
- ▸ **Multi-Agent Orchestration:** Evaluated and prototyped multi-agent workflows using LangGraph state machines, CrewAI role-based agents, and N8N automation; guided team adoption strategy across agentic frameworks
- ▸ **RAG Knowledge Systems:** Designed dual-path RAG architecture combining vector similarity search (FAISS/Pinecone) with structured ML inference pipelines for solar installation data; integrated NASA POWER and NREL PVWatts APIs as live knowledge sources

- ▶ **Solution Architecture:** Designed end-to-end multi-tier architecture for solar marketplace — microservices boundaries, data flow patterns, API contracts across 60+ services; defined NFRs across availability, latency, and security
- ▶ **Security & SOC:** Established security framework with GuardDuty, Security Hub, Inspector achieving zero critical findings and SOC2 compliance; automated vulnerability remediation using Lambda and EventBridge
- ▶ **Infrastructure at Scale:** Managed 60+ microservices handling 1M+ daily transactions with 99.9% uptime SLA across multi-region AWS; conducted architectural risk assessments and mitigation strategies for mission-critical workloads
- ▶ **Cost Optimization:** Reduced AWS costs by 40% while scaling infrastructure 3x through ECS migrations, reserved instance planning, and FinOps governance
- ▶ **Multi-Account Strategy:** Architected AWS multi-account structure using Organizations, Control Tower, and SCPs for security isolation, governance, and regulatory compliance
- ▶ **Team Leadership:** Mentored cross-functional engineering teams on agentic AI, DevSecOps, and cloud-native practices; championed technology evangelism across emerging AI tooling

Technical Architect | Value Momentum Inc
November 2017 – July 2023

Hyderabad, India · 12-member team · Client: TMHCC Insurance (Tokio Marine Holdings Group)

- ▶ **Enterprise Architecture:** Designed cloud-native architectures for TMHCC Insurance — a global financial services carrier — defining technical roadmaps and migration strategies for policy management and claims processing in a SOC2/ISO 27001 regulated ecosystem
- ▶ **AI-Powered AIOps:** Implemented predictive monitoring and anomaly detection using AI/ML models for incident forecasting, automated remediation playbooks, and MTTR reduction — early AIOps adoption for enterprise insurance workloads
- ▶ **Security Architecture:** Architected end-to-end security frameworks: VPC design, Security Groups, KMS encryption at rest/transit, achieving SOC2 and ISO 27001 — zero critical security findings across the engagement
- ▶ **Container Platform:** Designed enterprise container platform managing 1000+ containers with HA, DR, and auto-scaling across multi-region AWS deployments
- ▶ **Disaster Recovery:** Designed multi-region DR strategies achieving RPO < 15 min, RTO < 1 hour for business-critical workloads — exceeding industry-standard targets
- ▶ **Team Leadership:** Built and led 12-member engineering team; conducted architecture reviews, established DevSecOps culture, and defined best practices across the full SDLC

Senior Software Engineer → Senior Tech Lead | Various Organizations
2009 – 2017

Ebutor · Intellisavvy · Laine India · Supreme Paper Mills

Progressive career building location-based APIs, IoT backends, e-commerce platforms, and Oracle application systems. Technology stack: PHP, Node.js, Python, MySQL, Oracle. Developed strong foundations in distributed systems, API design, and engineering leadership.

KEY TECHNOLOGIES

AI / Agentic AI	LangChain · LangGraph · LlamaIndex · CrewAI · AutoGen · OpenAI Agents SDK · FastMCP · N8N · Agno · Langflow · LangSmith · AgentOps
LLMs & Platforms	AWS Bedrock · Anthropic Claude (API + Claude Code) · OpenAI GPT-4o/o3 · Gemini 2.5 Pro · DeepSeek R1 · Llama 4 · Mistral · Ollama · Vertex AI · Azure AI Studio
Cloud & Architecture	AWS (ECS · EKS · Lambda · CloudFormation · CDK · Organizations · Control Tower · SageMaker) · Azure (AI Studio · AKS · Function Apps) · GCP (Vertex AI · GKE) · Multi-cloud
Security & Compliance	GuardDuty · Security Hub · Inspector · WAF · CloudTrail · Config · Secrets Manager · KMS · Macie · SOC2 · ISO 27001 · Snyk · SonarQube · OAuth 2.1
Containers & IaC	Docker · Kubernetes · ECS · EKS · Helm · Terraform · Ansible · CDK (Python) · CloudFormation
CI/CD & Observability	GitHub Actions · Jenkins · CodePipeline · DataDog · OpenTelemetry (OTEL) · New Relic · ELK · Splunk · Prometheus · Grafana · CloudWatch
Vector & Data	Pinecone · FAISS · Chroma · PgVector · PostgreSQL · MySQL · MongoDB · DynamoDB · Redis · Snowflake
Programming	Python · Node.js · JavaScript · Go · Java/Spring Boot (integration-level) · PHP · Ruby

CORE COMPETENCIES

- ◆ Agentic AI System Design & AgentOps
- ◆ MCP Server Architecture & Integration
- ◆ Multi-Agent Orchestration & RAG Systems

- ◆ Enterprise Cloud Architecture & FinOps
- ◆ NFR Definition & Architectural Risk Assessment
- ◆ Security Architecture & SOC Operations
- ◆ Disaster Recovery & Business Continuity
- ◆ DevSecOps · SRE · AIOps Practices
- ◆ Technology Evangelism & Team Mentoring

NOTABLE ACHIEVEMENTS

- **MCP Pioneer:** Built custom Model Context Protocol servers in production before MCP became the industry standard — now adopted by OpenAI, Google, and 90%+ of enterprise AI tooling in 2026
- **Agentic AI:** Pioneered production agentic workflows with ReAct reasoning, multi-agent coordination, and AgentOps observability — reducing manual operations by 60% across 60+ microservices
- **Infrastructure:** Architected 60+ microservices handling 1M+ daily transactions with 99.9% uptime; defined NFRs, assessed architectural risks, and delivered mitigation strategies for mission-critical workloads
- **Cost Optimization:** Delivered 40% AWS cost reduction while scaling infrastructure 3x through strategic FinOps decisions, ECS migrations, and reserved instance planning
- **Security Posture:** Established SOC framework with zero security breaches, 70% faster incident response, and SOC2/ISO 27001 compliance for regulated financial/insurance workloads
- **Disaster Recovery:** Designed DR solutions achieving RPO < 15 min, RTO < 1 hour — exceeding enterprise standards and covering business-critical, regulated data systems
- **Team Building:** Built and mentored 12-member engineering team; established DevSecOps culture and architectural governance processes that scaled with 3x business growth

EDUCATION & CERTIFICATIONS

Master of Computer Applications (MCA)
Biju Patnaik University of Technology, Odisha | 2006 - 2009

Bachelor of Science
North Orissa University | 2003 - 2006

AWS Certified Solutions Architect - Associate
AWS Certified Developer - Associate
AWS Cloud Practitioner
Red Hat Certified System Administrator (RHCSA)
Certified Scrum Master (CSM)