Raghunath Manyam

PRINCIPAL ENGINEER · SYSTEMS ARCHITECT · ENGINEERING MANAGER

22 years · Finance & Insurance · AWS · Claude · Mainframe → Cloud

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SUMMARY

I architect AI agent pipelines, full-stack apps and data platforms for businesses that move real money. I have spent 22 years in insurance and finance. Today I lead a reinsurance modernization at a Tier-1 carrier and I am the sole architect of an 8-stage Claude pipeline that turns COBOL into AWS code, in internal production use. I have led 70+ engineers, direct and indirect, across the US, India and Europe, and earlier ran ITIL operations across 150 applications. I architected IMS-DB systems that handled 1M+ transactions an hour. I bridge deep mainframe skills (COBOL, PL/I, IMS-DB, DB2 z/OS) and modern cloud delivery (Claude, MCP, AWS, Next.js, Python, Supabase).

BY THE NUMBERS

Billions	**70+**	**<5 s**	**8**	**22**
of dollars in treaty exposure on systems I designed	**engineers led** US, India and Europe	**search** from 3–5 minutes	**AI stages** in production	**years** regulated industries

EXPERIENCE

Lead Engineer

Sep 2020 - Present

Cognizant — Financial Services Client

Enterprise Reinsurance modernization at a Tier-1 carrier — a 25+ year-old PL/I + DB2-LUW system carrying $billions in active treaty exposure, with ~50 daily actuarial and finance consumers and no write-freeze tolerance. Own technical direction across the data, application, and reporting tracks; career-wide I have led 70+ engineers, direct and indirect, across the US, India and Europe. Designed the metadata-driven migration pattern that collapsed the 23-table mainframe → Aurora migration into 3 Glue jobs (vs. ~69 the obvious design called for); architected the Cash Clearance latency win with DynamoDB caching over partitioned Aurora reads. Cut Cash Clearance search latency from 3–5 minutes to <5 seconds on 100K+ row queries; shipped the event-driven reporting layer feeding ~50 treaty and finance consumers. Also sole architect and builder of the Modernization Factory — an agentic pipeline (built as an MCP server) that turns JCL + COBOL into AWS Lambda, Step Functions, and Aurora DDL with a parity test suite. Its 8 stages route per-stage across Claude tiers — Haiku for the triage gate, Sonnet for structured extraction and codegen, Opus with extended thinking for the one architectural-routing decision and the parity-test design — about 35% cheaper on list prices than running Opus on every stage, with no quality regression seen in human review. Human-in-the-loop by default: the pipeline pauses for schema review before it writes any code. In internal production use, output shipping after minor human review.

Project Manager — Operations

May 2017 - Dec 2019

Cognizant — Financial Services Client

L1–L3 application operations across a 150-system production portfolio under ITIL delivery — every reactive ticket triage came out of the same team's hours. Owned operational outcomes for 70+ engineers, direct and indirect, across the US, India and Europe. Stood up the team's first proactive monitoring + alerting layer so every shift ran off shared dashboards; drove the focus from triage volume to root-cause elimination — identifying repeat incidents and shipping permanent fixes rather than re-running the same ticket loop. Improved portfolio stability by 60% over three years.

Sr Software Engineer

Jun 2007 - Apr 2017

Cognizant — Financial Services Client

Major rating-engine re-platform at a US personal-lines carrier — the actuarial business owned the rules but couldn't change them without an engineering round-trip, because they lived as 100+ hardcoded PL/I procedures over IMS-DB lookups. Owned the business-logic analysis track. Translated 100+ rating algorithms into Ratabase semantics — each validated against an actuarial SME; ran re-rate cycles across full state policy books when rating errors surfaced; pair-designed the Informatica + PowerExchange data pipelines with the Principal architect. Individual re-rate cycles returned several-hundred-thousand-dollar customer refunds; the pipeline became the data backbone for actuarial pricing and underwriting decisioning.

Software Engineer

Apr 2004 - May 2007

Cognizant — Financial Services Client

Entry into regulated-industry tech — production support and feature work on P&C insurance applications. Owned DB2 SQL performance tuning on claims workloads, requirements analysis with business analysts, and quality audits across the application portfolio. Built the mainframe-adjacent data, release-discipline, and customer-money instincts every later role compounded on.

SIGNATURE PROJECTS

Modernization Factory — Agentic COBOL→AWS Pipeline

2025 - Present · Cognizant — Financial Services Client

The architectural call: model tiering per stage, not one model for everything — Haiku gates, Sonnet does the structured bulk, Opus reasons only where it changes the outcome. About 35% cheaper on list prices than running Opus on every stage, with no quality regression seen in human review on the structured stages. Stage 4 (Layer Decision) is the one stage on Opus with extended thinking — it routes each mainframe step to Lambda / Aurora SQL / DynamoDB / skip, and getting it wrong cascades through every downstream stage, so it gets a private reasoning budget the other seven stages don't.

Enterprise Reinsurance — Data Migration and Reporting

2020 - 2024 · Cognizant — Financial Services Client

Designed a metadata-driven ETL architecture: 3 generalized Glue jobs (extract, transform, load) covering all 23 source tables — instead of the obvious 3-per-table design (~69 jobs) the team would have built by default. Architected the dual-pipeline split: AWS DMS for one-time historical migration off mainframe DB2-LUW; Glue/PySpark for ongoing ELT and the reporting layer — no DMS dependency on reporting.

Enterprise Reinsurance — Cash Clearance

2020 - 2024 · Cognizant — Financial Services Client

Cut search query latency from 3–5 minutes to under 5 seconds — even for result sets exceeding 100K rows — via DynamoDB caching of search results and PostgreSQL core-table splitting for partitioned reads. Designed a hybrid sync/async execution model in the Lambda backend — interactive flows stay responsive while heavy workloads run async.

raghunathmanyam.com — Ask My Career

2026

The architectural call: every constraint that matters is enforced at the database boundary, not in application code — the cap is a PL/pgSQL atomic RPC, the citation contract is a system-prompt + source-path data invariant, the corpus freshness is a SHA-256 diff at ingest. The model is the easy part; the boundary is the architecture. Pattern is identical to the Modernization Factory's: sanitize at ingest, query against pre-sanitized chunks, log per-request cost and citations, fail closed on no-context. Different scale, same shape.

Profitability Analytics Dataset

2014 - 2015 · Cognizant — Financial Services Client

Sourced premium and loss data from 12 heterogeneous systems (mainframe COBOL files, DB2 z/OS, MSSQL) into a single analytics-ready layer on Teradata. Established the PowerExchange connections and mapped incoming records against COBOL copybook layouts — the deepest technical lift on the program.

mcp-sql — Cross-Platform DB Bridge for Copilot

2025

The architectural call: one auditable read-only boundary instead of per-developer DB credentials — the pattern that makes LLM-assisted modernization safe at team scale. Component of the Modernization Factory: the tool layer the schema-analysis agents call to ground every translation decision in real legacy schema state.

TECHNICAL SKILLS

AI Architecture	Agentic pipeline design · Multi-model routing (Sonnet · Haiku · Opus) · MCP as agent tool layer · RAG (structured + unstructured) · Agent loop & stop conditions · Prompt-system design · Production guardrails (cost · latency · audit) · Claude API · MCP Protocol · FastMCP
Cloud & Data	AWS Lambda · AWS DMS · AWS Glue · S3 · EventBridge · Aurora PostgreSQL · DynamoDB · Python · TypeScript · Next.js · Supabase · PySpark · Teradata
Legacy Core	COBOL · PL/I · IMS-DB · DB2 z/OS · JCL · CICS · Ratabase · Informatica PowerCenter · PowerExchange
Leadership & Delivery	Agile/Scrum (CSM) · ITIL Foundation · AWS Serverless Certified · INS 21 Certified · Offshore Coordination · Strategic Execution

EDUCATION & CERTIFICATIONS

B.E. in Electronics & Communication Engineering

Sri Krishnadevaraya University, 1999 – 2003

Certifications

Certified Scrum Master (CSM) · AWS Serverless Architecture · ITIL Foundation · INS 21 Insurance Essentials

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Open to: Principal Engineer · Systems Architect · Staff Engineer · Engineering Manager (regulated industries)

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