Vishal Kumar

Associate Director of Engineering | Distributed Systems, Cloud Infrastructure, ERP & AI Platforms | AWS Certified Solutions Architect - Professional

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PROFESSIONAL SUMMARY

Engineering leader with **10+ years** designing distributed, multi-tenant cloud platforms and AI-driven workflow systems in high-growth product companies across India and the Netherlands. As **Associate Director of Engineering at CapGrid**, operating in the capacity of **CPTO**, I lead a **20-engineer organization**, own the company's complete infrastructure and stay ~50% hands-on. I translate business strategy into platform architecture, engineering standards and technical roadmaps. Results include **~86% lower cloud spend** (~$14K → ~$2K a month), quotation turnaround cut **from 45 days to 5** with LLM-driven automation, a platform serving **100K users at 5K-10K requests/sec with 99.9% uptime and sub-200ms latency**, and a **Big Four technology audit** passed as sole technical owner. Open to Principal Engineer, Engineering Manager, Director and CTO roles worldwide.

CORE COMPETENCIES

- **Leadership & Strategy:** Engineering Leadership, Technical Strategy, Platform Roadmaps, Engineering Standards, Release Governance, Stakeholder Management, Mentoring, Agile (Scrum, Kanban), Sprint Planning
- **Architecture:** Distributed Systems, Event-Driven Microservices, Multi-Tenant SaaS, System Design, Scalability & Reliability, API Design, Database Sharding, LLM-Driven Automation
- **Cloud & Infrastructure:** AWS (EC2, Lambda, SQS, RDS, S3, Route 53, Cognito, CloudWatch), Cloud Cost Optimization (FinOps), Disaster Recovery, Security & Compliance Audits, Docker, Nginx, GitHub Actions, CI/CD, Observability, Azure, GCP
- **Backend & Data:** Node.js, TypeScript, Go (Golang), Express, Fastify, Hapi, REST, GraphQL (Apollo Federation), gRPC, WebSockets, PostgreSQL, MongoDB (Atlas Search, Triggers), DynamoDB, Redis, Elasticsearch, Firebase Firestore, ERPNext / Frappe, ETL (Hevo), Apache Superset, Jest, Test-Driven Development

PROFESSIONAL EXPERIENCE

Associate Director of Engineering Oct 2025 - Present
CapGrid Solutions Private Limited | Gurugram, India

Promoted from Software Development Engineer 3. Lead technical architecture, infrastructure and platform strategy for CapGrid's cloud manufacturing platform, a distributed system powering supplier collaboration, pricing automation and order lifecycle workflows for enterprise manufacturing customers. Operate in the capacity of CPTO across product, platform, infrastructure and AI, while remaining ~50% hands-on.

- **Own CapGrid's complete infrastructure** as its single technical owner: cloud, networking, databases, CI/CD, observability, backups and disaster recovery.
- **Reduced monthly cloud spend by ~86%**, from ~$14K to ~$2K (~$144K a year), by making every line of the bill explainable, removing unused services and data, right-sizing from measured peaks, and self-hosting databases only where backup, restore, failover and patching were proven; uptime and latency targets were unchanged.
- **Turned a failed first technology audit into a successful Big Four audit** the following year, as sole technical owner, by documenting workflows end to end, writing the technical policies and enforcing least-privilege access across production, the cloud console and data.
- **Rebuilt the monthly requirement-planning engine**, a years-old system with no documentation: reverse-engineered and documented the existing workflow, listed its shortcomings, and shipped the new engine in two iterations over 2-3 months with a built-in forecasting engine.
- **Set up CapGrid's ERPNext / Frappe ERP from scratch**, containerized and deployed it end to end on Docker with custom apps and scripts on top of standard workflows, and upgraded it from v14 to v16.
- **Scaled the platform to 100K users** and sustained 5K-10K requests/sec with 99.9% uptime and sub-200ms API latency.

- **Increased sprint delivery predictability from 60% to 85%** by introducing engineering-led requirement validation and structured backlog refinement.
- **Cut pull request cycle time from ~3 days to 1 day** with automated CI quality gates, static analysis and AI-assisted code review.
- **Lowered production defect leakage by 35%** by institutionalizing automated testing standards and release readiness criteria.
- **Established engineering standards across the organization**: CI/CD pipelines, release governance, observability practices and production readiness frameworks.
- **Mentored senior engineers into technical leadership roles**, strengthening architectural ownership and engineering maturity across the organization.

Software Development Engineer 3 Jul 2023 - Sep 2025

CapGrid Solutions Private Limited | Gurugram, India

- **Architected an AI-driven order ingestion and workflow automation platform** that cut sales quotation turnaround from 45 days to 5 (89% reduction) through automated document parsing, workflow orchestration and supplier matching pipelines.
- **Developed a multimodal AI ingestion engine** for customer inputs from images, Excel files and messaging channels, eliminating manual data entry and reducing order misinterpretation in procurement workflows.
- **Engineered AI-powered specification extraction and part matching** with ~90% straight-through acceptance, enabling automated price estimation for newly onboarded manufacturing drawings.
- **Designed a distributed, multi-tenant, event-driven backend** on Node.js, Go, AWS (SQS, Lambda, EC2, RDS) and MongoDB (Atlas Search, Triggers) with asynchronous processing pipelines, at sub-200ms latency and 99.9% availability.
- **Built CI/CD pipelines on GitHub Actions** and designed the disaster recovery strategy for business continuity.
- **Developed a conversational ingestion chatbot** on a self-hosted Llama 3.2 model (Ollama) for customer schedules.

Backend Engineer Aug 2022 - Jul 2023

Bondify B.V. | Rotterdam, Netherlands (Highly Skilled Migrant permit)

Backend architecture for Template.io, a contract automation platform for scalable document generation, structured template processing and enterprise document workflows.

- **Delivered the contract drafting engine MVP within two quarters**, with REST and GraphQL APIs and structured template-processing pipelines.
- **Helped the company secure EU regional development (ERDF) funding** for its contract-automation platform through the Kansen voor West III programme.
- **Engineered modular backend services with over 90% automated test coverage**, improving release stability and enabling reliable continuous delivery.
- **Optimized service modularity and database access patterns**, reducing post-deployment defects and improving long-term maintainability.
- **Implemented AWS-based authentication and observability pipelines** for real-time monitoring of service health, uptime and API latency.
- **Defined API contracts and service boundaries** with product and frontend teams, reducing integration friction and improving delivery predictability.

Backend Engineer Dec 2021 - Jul 2022

Jio Media Limited (Jio News) | Mumbai, India

Jio News: a high-traffic multilingual news platform with ~5 million active users across 12+ languages and 10M+ app downloads, with real-time publishing and personalized feeds.

- **Led the backend re-architecture of the news publishing platform**, migrating legacy services from Go to Node.js (TypeScript) within two months, improving maintainability and feature velocity.
- **Designed scalable microservices for real-time publishing and personalized feeds**, at sub-200ms API latency under peak load.
- **Optimized PostgreSQL schemas and query strategies** for reliable content distribution across multilingual markets.

- **Strengthened engineering quality** through better code review practices and automated testing coverage, reducing production incidents.
- **Streamlined content-to-publish workflows** with editorial and product teams, enabling faster publishing across regional-language platforms.

Software Engineer Aug 2020 - Nov 2021

The Lightning Group (formerly uCreate IT Pvt. Ltd.) | Mohali, India

Moveable.uk: a multi-tenant, white-label home-moving and real-estate SaaS platform, built with a distributed team across Canada, Dubai, Poland and India.

- **Designed tenant-isolated data models and backend APIs** for secure multi-tenancy and tenant-level data segregation across client deployments.
- **Implemented configuration-driven platform architecture**, enabling client customization and white-label deployments without code changes.
- **Developed tenant-aware frontend modules in React** for customizable user experiences per customer.
- **Improved deployment reliability and release predictability** by strengthening CI/CD, automated testing and code review discipline.

Software Engineer Jul 2018 - Jul 2020

Epitome Technologies Limited | Mohali, India

Developed Novagems, a workforce management platform for security agencies (automated scheduling, field monitoring and operational coordination), and owned its backend end to end.

- **Improved workforce scheduling efficiency by 70%** with automated guard-assignment workflows and real-time tracking.
- **Built GPS tracking, geofencing alerts and automated payroll**, reducing manual coordination for large security operations teams.
- **Developed event-driven backend workflows on Firebase Cloud Functions** for real-time scheduling updates and notifications.
- **Optimized database schemas and data access patterns** to support growing operational scale.
- **Served as sprint lead**, running sprint planning and delivery coordination across the team.

Junior Software Engineer Aug 2016 - Jun 2018

Igniva Infotech Private Limited | Mohali, India

Backend and mobile development for early-stage products in food delivery, healthcare and EdTech.

- **Developed a couple of food-delivery apps**, including the Chef Order platform, which won the Best Team Project award.
- **Built RESTful backend APIs (Node.js, MongoDB) powering mobile applications**, with real-time data synchronization between services and client apps.
- **Built reusable React Native components** for onboarding, cart and dashboard workflows, improving development velocity across several apps.
- **Delivered end-to-end features** across backend services, API integrations and mobile UI for rapid product iteration.

PROJECTS

- **CapGrid:** cloud manufacturing platform for sourcing and managing precision components; distributed backend for supplier workflows, order ingestion, pricing automation and analytics.
- **Template.io (Bondify):** backend platform for automated contract generation and document workflows.
- **Jio News:** high-traffic multilingual news platform with real-time delivery and personalized feeds.
- **Moveable.uk:** platform that simplifies home relocation by connecting movers with service providers.
- **Novagems:** workforce management for security agencies: scheduling, GPS tracking and operational monitoring.
- **open-kudos:** Slack bot that recognizes and celebrates team contributions; a long-running side project.
- **Public reference work:** engineering-standards (CI quality gate, ADR, postmortem and DR templates), multi-tenant-event-driven-ref (Postgres RLS, outbox, Go worker, Terraform), llm-document-ingestion (LLM extraction with confidence routing and evaluation), tech-strategy-onepager, and claude-local-api (Go).

- **node22-pnpm-pm2-chromium:** multi-architecture Node.js 22 base images with pnpm, PM2 and headless Chromium; 5,000+ Docker Hub pulls.

OPEN SOURCE & COMMUNITY

- **fastify-rate-limit:** merged example of a custom rate-limit store using Sequelize and PostgreSQL (2020).
- **AdonisJS Core:** submitted a pull request adding asynchronous function support for CORS origin whitelisting.
- **Stack Overflow:** answers on questions with ~1.1M combined views.

LEADERSHIP & AWARDS

- **Technical Architect Recognition**, Jio Media Limited: for backend architecture of the Jio News platform.
- **Sprint Lead**, Epitome Technologies: sprint planning and delivery coordination.
- **Best Team Project Award**, Igniva Infotech: for the Chef Order food-ordering platform.
- **Head Coordinator**, Anusandhan 2014 (technical fest) and Excelsior 2015 (national techno-cultural fest), UIET Kurukshetra University.

CERTIFICATIONS

- AWS Certified Solutions Architect - Professional
- AWS Certified Solutions Architect - Associate

EDUCATION

Bachelor of Technology, Computer Science and Engineering, University Institute of Engineering and Technology, Kurukshetra University, India | Aug 2012 - Jul 2016 | First Division

LANGUAGES

English (professional), Hindi (native), German (learning)