

Ashutosh Modi

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SUMMARY

Backend and platform engineer with **4+ years** building telecom-scale systems in **C/C++**, **Rust**, **Python**, **SQL**, and **Linux**. Built **Sandarbha**, a Rust code-intelligence engine (libclang static analysis, sealed reproducible snapshots, MCP server) for a legacy billing codebase; designed a **Tuxedo-to-gRPC** migration framework for Tier-1 operators; replaced licensed reporting with an in-house Python and Lex/Yacc toolchain; and lead AI-assisted engineering workflows with **Cursor**.

EXPERIENCE

Amdocs

Sep 2022 - Present

Software Developer, Telecom Backend Platform

Gurgaon, India

- Designed and built **Sandarbha** (Rust), a code-intelligence platform that reads a legacy billing codebase through four evidence tiers, including a **libclang** compiler tier, into sealed, reproducible snapshots and serves them as a CLI, HTTP API, **MCP** server, and web UI; every answer cites its source or says it cannot tell.
- Designed and shipped a **Tuxedo-to-gRPC migration framework** for Tier-1 telecom backends, preserving **every line of business logic**; validated as a production-service POC and now rolling out across CK Hutchison's **Three UK** and **Three Ireland** to remove a multi-million-dollar Oracle dependency.
- Drove day-to-day technical execution for a **4-5 engineer team** on a Tier-1 telecom modernization program since **Dec 2025**: code review, unblocking, and the engineering manager's primary technical interface (informal capacity).
- Replaced **TIBCO WebFOCUS** reporting with an in-house Python library and a Lex/Yacc auto-converter for **500+** legacy scripts (48 hours to 40 minutes each), eliminating **millions in annual licensing per client deployment**.
- Hardened a long-lived C/C++ codebase: guard-clause refactors cut potential vulnerabilities by **30%**, a build-time prototype generator catches **80%** of would-be production defects, and **95%** of legacy compile-time warnings are resolved.
- Owned the company-wide **Cursor** rollout as the AI development platform (knowledge base, agent skills, workflow rules, layered context loading for multi-MB codebases) plus reusable Vim / VS Code snippets and shell automation, cutting team toolchain friction by **50%+**; operate Oracle DB on large telecom datasets.

PROJECTS

Sandarbha: Code Intelligence for Legacy Billing Code | *Rust, libclang, SQLite, SolidJS, MCP* Sep 2026 - Present

- Reconciles four evidence tiers (data dictionary, embedded-SQL data layer, translated batch modules, C compiler tier) into **BLAKE3-sealed, byte-reproducible snapshots**; conflicts are reported, never resolved, and an empty result is never confused with "could not tell".
- Built a statically linked **libclang** C front end deriving control-flow graphs, control and data dependence, cross-unit call links, and Tuxedo service bindings, with lower-bound flags where clang's error recovery may drop code.
- Serves one query layer as a **60-command CLI**, a **53-route HTTP API** with a **SolidJS** UI, and an **MCP** server whose 5-tool default lens cuts first-contact size **83%** versus the 51-tool catalogue.
- Gated by **2,800+** automated tests, including mutation-verified guards and cross-process reproducibility sweeps; ships checksum-verified standalone binaries for RHEL 7/8/9 and Windows through **GitLab CI/CD**.
- Release 0.3.0-rc.10 cut peak sync memory **34%** and wall time **16%** (measured once on a large corpus); built with parallel **Cursor** AI-agent sessions on isolated branches under a written release discipline.

Tuxedo-to-gRPC Migration Framework | *gRPC, Protobuf, HAProxy, Consul, Nomad*

Jun 2025 - Nov 2025

- Built a generic protocol shim translating Tuxedo's flattened buffers into strongly-typed Protobuf with **zero changes to business code**, on an **HAProxy + Consul + Nomad** runtime for load balancing, service discovery, scheduling, and incremental rollout.

SKILLS

Languages & Frameworks: C/C++, Rust, Python, TypeScript, SolidJS, SQL, Linux Shell Scripting

Code Analysis & Compilers: libclang/Clang, Static Analysis, Lex/Yacc, Model Context Protocol (MCP)

Distributed Systems: gRPC, Protobuf, HAProxy, HashiCorp Consul, HashiCorp Nomad, Consul Template, Kafka

Tooling & Databases: Git/GitHub, GitLab CI/CD, SQLite, Oracle DB, Vim, VS Code, Tmux, Linux/UNIX, Cursor

Concepts: Microservices, Service Discovery, Load Balancing, High Availability, Reproducible Builds, Knowledge Engineering, AI Agent Workflows, Context Design, Data Structures & Algorithms, System Design

EDUCATION

Guru Nanak Dev University

2018 - 2022

Bachelor of Technology in Computer Science, CGPA: 8.0 / 10.0

Amritsar, India

AWARDS

Pinnacle Performer, Amdocs (Feb 2026); **Employee of the Month**, Amdocs (Feb 2025 and Feb 2026)

Placement Head, Guru Nanak Dev University; **Winner**, Google Workshop competition